

**STATE OF CALIFORNIA
AIR RESOURCES BOARD**

**Proposed Amendments to the Regulation)
on the Commercialization of Alternative)
Diesel Fuels)**

**Comment Deadline:
February 24, 2020**

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

February 24, 2020

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**STATE OF CALIFORNIA
AIR RESOURCES BOARD**

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Introduction

On January 7, 2020, the California Air Resources Board (“ARB”) published a “Notice of Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of New Alternative Diesel Fuels” [CCR, Title 13, Division 3, Chapter 5, Article 3, Sub article 2, Section 2293.2 and Appendix 1] (“the Proposal”).

The Truck and Engine Manufacturers Association (“EMA”) is the international trade association that represents the interests of the world’s leading manufacturers of engines, including manufacturers of compression ignition engines used in both on- and off-highway products that will utilize the fuels covered by the Proposal.

I. Background

EMA has actively participated in the development of the testing program and regulatory development process that has led to the existing regulations concerning the use of biodiesel blends, renewable diesel fuels, and gas-to-liquid (GTL) fuels that are the subject of the proposed amendments. This includes participating in discussions with ARB staff and at industry workshops.

Throughout the testing program and the previous rulemaking process, EMA and its members emphasized to ARB the importance of ensuring that any alternative fuel regulations recognize the fundamental importance of fuels to the performance, durability, and exhaust emission levels of both new and existing engines. [See attached “COMMENTS OF THE TRUCK and ENGINE MANUFACTURERS ASSOCIATION,” submitted December 10, 2013.] In short, the regulations must recognize the role that engines and fuels have on each other.

The Proposal raises a significant number of concerns associated with effective implementation of the proposed revisions to the existing regulatory program, further exacerbating concerns raised by EMA in the rulemaking process utilized to adopt the program (which were not addressed).

II. Impact of the Proposal

Several aspects of the Proposal, and implementation of the regulations, could significantly affect engine manufacturers, either directly or indirectly.

Engine manufacturers remain concerned that the use of alternative fuels will negatively impact engines' ability to demonstrate compliance with in-use emission requirements and on-board diagnostic requirements given the potential disparity in fuel properties between alternative fuels and California petroleum diesel fuel. The lack of any evaluation of the long-term emissions influence of alternative fuels, during the development of both the previous rulemaking and the January 2020 Proposal, continues to raise significant concerns.

The existing program was developed with a sunset provision related to achieving a minimum of 80% effective utilization of new technology diesel engines. This sunset provision is expected to become effective for on-highway diesel fuel beginning January 1, 2024. Thus, if the proposed revisions are adopted, they will have a maximum effective period of just two years for on-highway diesel fuel only. Moreover, there is a strong potential that this effective period will be shortened due to regulatory implementation delays and/or the inability of additive suppliers to complete the proposed testing.

If adopted, the Proposal would put into place several unprecedented ARB regulatory requirements, including:

- Independent licensed professional engineer oversight of all fuel blending and emissions testing.
- Testing at multiple test laboratories with statistical analysis of each test laboratory's result demonstrating compliance.
- Testing of candidate fuels in comparison to both Reference ARB Diesel and Designated Equivalent Limits Diesel.
- Submission of retain samples of all fuels and blend components to ARB.
- Executive Officer authority to revoke or modify a previously approved Executive Order (EO) for "good cause" without ensuring that such a determination requires at least as robust a testing program as was required for the original EO to be approved.
- An implementation date less than 12 months after the publication of the Proposal and potentially less than 6 months after approval by the California Office of Administrative Law (OAL).

The technical evaluation conducted by ARB Staff as provided with the Proposal did not include independent oversight, multiple lab testing, or testing with Designated Equivalent Limits Diesel to demonstrate that the Proposal is technically viable. In fact, during the December 2019 Workshop, the ARB Staff presentation stated the rationale for the Proposal was based on testing conducted at one laboratory where results conflicted with the test results submitted as the basis for the current additive EOs being issued. ARB did not conduct any testing to determine why the results differed between the two labs but instead would require any party attempting to comply with the requirements to ensure that test results from two laboratories both demonstrate statistical compliance. The two laboratories involved in the prior approval and testing represent two of the three laboratories ARB has identified as potential sources for the proposed test requirements. As

such, the Proposal would require industry to address the lab-to-lab variability issue that ARB never evaluated. In addition, ARB Staff has not conducted any testing with Designated Equivalent Limits Diesel, as required by the Proposal. As stated in the Proposal, additive suppliers would be required to conduct audits of the ARB approval process for Designated Equivalent Limits Diesel without the knowledge of the party responsible for requesting ARB approval.

The Economical and Fiscal Impact Assessment provided with the Proposal is limited to the cost of running the proposed test requirements in one laboratory, not the two required by the Proposal. The Assessment also assumes that no testing would be required to address the lab-to-lab variability clearly evident from the difference between the testing completed for approval of the existing additive EO's and the testing conducted by ARB Staff. The Assessment also did not state if the cost estimate for certification testing was obtained from multiple laboratories and averaged, or based on the costs of a single laboratory. In addition, the Assessment does not include any analysis of the influence of the proposed requirements on the cost of fuel to California consumers either directly (testing costs to obtain approval) or indirectly as a result of fuel availability, low-carbon fuel standard (LCFS) credit costs, etc. resulting from the disruption in the availability of approved biodiesel for sale in California. California diesel fuel is already significantly more costly than diesel fuel used throughout the rest of the United States, and the proposed regulatory requirements have significant potential to increase the disparity and result in fuel shortages associated with related LCFS requirements. ARB cannot evaluate the economic and fiscal impact of the Proposal independent of all the other ARB requirements for diesel fuel to be sold in the state.

III. Recommendations

EMA opposes adoption of the Proposal in its current form. Prior to adoption of a Final Regulation Order, ARB should take the following steps:

1. Delay the implementation date of the rulemaking until at least 12 months following OAL approval.
2. Complete a lab-to-lab variability study involving the three laboratories identified. Utilize the statistical analysis of the results to provide an option for approval based on testing in one laboratory with statistical compliance including a lab-to-lab variability factor.
3. Complete a comprehensive economic and fiscal impact analysis that includes interactions with all ARB regulatory requirements for both fuels and engines. The resulting incremental cost per ton of NOx emission avoidance should be evaluated for cost effectiveness.
4. Determine the feasibility of the regulations if limited to off-highway diesel fuel as a result of the existing sunset provisions. The resulting incremental cost per ton of NOx emission avoidance should be evaluated for cost effectiveness.
5. Delete the testing requirements related to Designated Equivalent Limits Diesel fuel.

6. Revise the authority for the Executive Office to revoke or modify an approved EO to ensure that the data required to support such actions are at least as robust as the data provided to obtain the EO.

If you have any questions about EMA's comments, or would like to discuss this matter further, please do not hesitate to contact us.

Respectfully submitted,

TRUCK & ENGINE
MANUFACTURERS ASSOCIATION

Encl.

**STATE OF CALIFORNIA
AIR RESOURCES BOARD**

**Proposed Regulation on the)
Commercialization of New Alternative)
Diesel Fuels)
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~~Agenda Item: 13-11-2~~

**Board Hearing:
~~December 12, 2013~~**

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

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**STATE OF CALIFORNIA
AIR RESOURCES BOARD**

**Proposed Regulation on the
Commercialization of New Alternative
Diesel Fuels**)
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~~Agenda Item: 13-11-2~~

**Board Hearing:
~~December 12, 2013~~**

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

On October 22, 2013, the California Air Resources Board (“ARB”) published a “Notice of Public Hearing to Consider the Proposed Regulation on the Commercialization of New Alternative Diesel Fuels” [CCR, Title 13, Chapter 5, Article 3, Sub article 2, Section 2293] (“the Proposal”).

The Truck and Engine Manufacturers Association (“EMA”) is the international trade association that represents the interests of the world’s leading manufacturers of engines, including manufacturers of compression ignition engines used in both on-highway and nonroad products that will utilize the fuels covered by the Proposal.

I. Background

EMA has actively participated in the development of the testing program and regulatory development process that has led to the Proposal concerning the use of biodiesel blends, renewable diesel fuels, and gas-to-liquid (GTL) fuels. EMA has been an active participant in discussions with ARB staff and at industry workshops.

At the outset of the rulemaking process, and throughout the testing program, EMA and its members emphasized to ARB the importance of ensuring that any alternative fuel regulations recognize the fundamental importance of fuels to the performance, durability, and exhaust emission levels of both new and existing products. In short, fuels cannot exist independent of the engines that use them any more than engines can exist without the fuels required to power them.

The test program undertaken by ARB associated with the evaluation of biodiesel blendstocks from various feedstocks, renewable diesel fuels, and GTL fuels is by far the most comprehensive study of the effects of fuel properties on exhaust emissions ever conducted. Even so, the test program evaluated only a relatively small segment of the broad population of engines, vehicles/equipment, and emission control systems that make up the diverse inventory in California with only a small sub-set of alternative diesel fuels.

While the Proposal includes several features important to evaluating whether an alternative fuel is appropriate for use in the marketplace, it also raises a significant number of concerns associated with effective implementation of the prescribed regulatory program.

II. Impact of the Proposal

Although the Proposal would not directly regulate the activities of engine manufacturers, several aspects of its implementation could require engine manufacturer participation. For example, for a new alternative fuel to move from Stage 2 to either Stage 3A or 3B, the fuel supplier must “obtain approval of at least 75% of compression ignition engine original equipment manufacturers for which the ADF is expected or intended to be used.” That implies that engine manufacturers must have had sufficient opportunity to evaluate the proposed new fuel, or fuel blending component, to assess acceptability in both new and existing engines in the California marketplace. The Proposal does not set forth a process for determining how to meet the 75% threshold or whether it has been met. Engine manufacturers are in favor of having the regulation call for their acceptance of new fuels, but are concerned that the lack of an ARB approval process may result in this important requirement being difficult or impossible to enforce. Therefore, EMA recommends that the Proposal be revised to require written acceptance of a new alternative diesel fuel meeting the required consensus standard by engine manufacturers representing 75% by number and 75% by engines in service for those manufacturers certifying engines with ARB for sale in California.

Even if the Proposal were revised to clarify the level of engine manufacturer acceptance required, EMA still has significant concerns regarding misfueling by the 25% of manufacturers and/or engines that have not accepted the use of the alternative fuel. In addition, engine manufacturers are concerned that the use of alternative fuels will impact engines’ ability to demonstrate compliance with in-use emission requirements and on-board diagnostic requirements given the potential disparity in fuel properties between alternative fuels and California petroleum diesel fuel. The lack of any long-term emission influence evaluation of alternative fuels, either during the rulemaking development or as a requirement of the Proposal, raises significant concerns.

Given the 5-year maximum total timeframe outlined for Stage 2, it is not reasonable to assume that engine manufacturers will have sufficient time to complete the evaluations necessary after they have determined that a new fuel is viable. Similarly, it is not realistic for a new fuel to “achieve adoption of all consensus standards applicable to the ADF” within the prescribed timeframe. A review of the timeline associated with development of the ASTM D6751 standard for biodiesel and its inclusion at up to the B5 level in D975 would be beneficial as a guideline for the time necessary to complete the required consensus standards and engine manufacturer approvals. It also may be instructive to note that ARB’s October 2011 report on biodiesel, renewable diesel, and GTL fuels was five years in the making. Both of those examples demonstrate that the requirements for completion of Stage 2 will require more time than currently proposed. Engine manufacturers also are concerned that the requirement for completion of Stage 2 to develop a “consensus standard” for the alternative fuel may be misconstrued to mean a narrow consensus among fuel providers rather than the necessary broader consensus among engine manufacturers, users, and regulators in addition to fuel providers.

By the Proposal declaring that B6-B20 blends are at Stage 3A, ARB apparently deems conventional biodiesel methyl ester meeting D6751 and blended at B6-B20 levels as having met Stage 2 requirements. While a number of engine manufacturers have approved B20 for use in some of their engines, it is not clear that the 75% approval threshold, however defined, has been achieved. As noted above, there are substantial questions concerning how ARB intended the 75% approval threshold to be achieved. The apparent ARB approval of B20 blends raises significant

questions concerning both how this determination was made, and what regulatory action ARB intends to undertake to prevent misfueling using B20 blends in engines that have not been accepted for B20 use by the engine manufacturer.

In addition, it appears that ARB has determined that conventional biodiesel methyl esters meeting D6751 can be blended at levels greater than B20 without meeting the following Stage 2 requirements: (i) achieve adoption of a consensus standard applicable to the ADF; (ii) obtain approval of at least 75% of compression-ignition-engine original equipment manufacturers; (iii) identify appropriate fuel specifications for the ADF; and (iv) identify appropriate mitigation strategies for the ADF, none of which have been achieved. Additionally, the apparent approval of biodiesel blends greater than B20 conflicts with ARB's stated purpose in the Proposal to "foster the introduction and use of innovative ADFs in California that have no significant adverse impacts overall on public health or the environment relative to conventional, petroleum-based CARB diesel." ARB's own testing program confirmed previous testing that demonstrated a significant increase in NOx emissions from compression-ignition engines when utilizing biodiesel blends greater than B20. Additionally, ARB's NOx mitigation test program (utilized to identify options for NOx mitigation for biodiesel blends less than B20) identified no known means to mitigate NOx emissions from blends greater than B20. That error is particularly egregious given that ARB is implementing a low-NOx emission program for heavy-duty engines concurrent with this rulemaking which requires significant NOx reductions.

ARB also has deemed all renewable diesel fuels, gas-to-liquid fuels, and Fisher-Tropsch fuels as "Drop-in Fuel" by definition — meaning that those fuels can be utilized without further study by ARB, engine manufacturers, or California consumers. Without definition of the fuels and/or their fuel properties, engine manufacturers have significant concerns associated with untested, unacceptable fuels being placed in the California marketplace. ARB does propose properties for what is termed "Low-NOx Diesel base fuel" in Appendix A(a)(2), but has not proposed any requirement that the prescribed properties be utilized to define the minimum requirements for the renewable diesel fuels, gas-to-liquid fuels, and Fisher-Tropsch fuels deemed drop-in fuels. Recent experience has demonstrated that this loophole may be utilized by fuel producers that desire to market sub-standard products, reap sales benefits, and disappear when problems are identified. In addition, engine manufacturers do not have sufficient experience with fuels meeting ARB's Low-NOx Diesel base fuel to accept their use without constraint. While market factors may be expected to preclude significant use of those fuels neat, or at very high (greater than 75%) blend levels, neither ARB nor engine manufacturers have conducted any testing to demonstrate that such fuels could be used without significant engine performance, or regulatory compliance concerns. Engine manufacturers recommend that the definition of "Drop-in Fuel" be revised to remove renewable diesel, gas-to-liquid, and similar fuels and revise the definition of "Diesel Substitute" to clarify that: "'Diesel Substitute' includes, but is not limited to, blends of no more than 75% renewable diesel, gas-to-liquid fuels, Fischer-Tropsch fuels; ..."

ARB has proposed the use of a minimum of 5.0 percent Di-tert-butyl peroxide (DTBP) in biodiesel blendstock, subsequently blended to 20.0 percent or less, as one option for an acceptable biodiesel NOx mitigation measure (reference Appendix A(a)(1)). Engine manufacturers have significant concerns associated with this option for NOx mitigation. Specifically, peroxides such as DTBP are known to reduce oxidation stability of fuels. Neither ARB nor the fuels industry has demonstrated that the proposed final B20 blend would comply with the ASTM D7467 requirement for oxidation stability, or that use of sufficient anti-oxidant additive to meet the D7467

requirements would result in a final fuel that either mitigates NOx emission increases or is viable for engines in the marketplace. The fuel industry has advised that it would not recommend the use of this option to mitigate NOx emissions from biodiesel blends. ARB's inclusion of such an option effectively proclaims it a viable fuel option. As prescribed in Proposal Section 2293.3(b), a total of all additives should not exceed 1.0 percent by volume unless required for NOx mitigation. Engine manufacturers support the ARB determination that cumulative additive rates of greater than 1.0 percent by volume are unacceptable, but do not agree with its proposed exemption for the mitigation of NOx.

III. Recommendations

ARB should make several changes to the Proposal prior to its adoption as a Final Rule.

Specifically, EMA recommends that ARB:

7. Prescribe that the Stage 2 time period be a minimum of 2 years, with the opportunity to renew every 2 years for a total of 10 years.
8. Establish, in writing, a process that ARB will utilize to determine that 75% of engine manufacturers have accepted a Stage 2 fuel.
9. Define the term "consensus standard" for purposes of the Final Rule to include, at a minimum, consensus among fuel producers, fuel marketers, engine manufacturers, and users.
10. Direct the California Division of Weights and Measures to develop and implement regulations that mitigate the potential for misfueling as part of the transition from Stage 2 to Stage 3A or 3B, including, among other things, regulations associated with the use of B6-B20 blends deemed by ARB to be in Stage 3A that have not been accepted for use in all engines in California.
11. Clarify that all biodiesel blends greater than B20 are Stage 1 fuels that must meet all of the Stage 1 and Stage 2 program requirements prior to determination if Stage 3A or 3B is appropriate for those fuels.
12. Include a table of minimum fuel properties associated with "Drop-In Fuels" as defined by the Final Rule.
13. Revise the definition of "Drop-in Fuels" and "Diesel Substitute" to prevent blends of greater than 75% renewable diesel, gas-to-liquid fuels, Fischer-Tropsch fuels from being used prior to acceptance by engine manufacturers.
14. Delete the option to utilize a 5.0 percent DTBP additive treatment in B100 biodiesel blended into a finished B20 blend as a NOx mitigation measure.

If you have any questions about EMA's comments, or would like to discuss this matter further, please do not hesitate to contact us.

Respectfully submitted,

Engine Manufacturers Association