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Clerk of the Board  
California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

**Re: National Biodiesel Board Comments on HD Omnibus Regulation (hdomnibus2020)**

The National Biodiesel Board (NBB) is the national trade association for the U.S. biodiesel, renewable hydrocarbon diesel, and renewable jet fuel industries. Our members produce more than 90 percent of the nation's biodiesel and renewable diesel. In addition to government affairs activities, the NBB serves as the coordinating body for industry research and development. The NBB has strongly supported programs in numerous states, including California, designed to displace petroleum, reduce the carbon intensity of fuels used in various applications, and improve emissions from today's fuels. Our members are proud to manufacture advanced biofuels that offer significant and immediate environmental and public health benefits while functioning as well or better than conventional fossil alternatives.

We are pleased to provide these comments on the Heavy-Duty Engine and Vehicle Omnibus Regulation and Associated Amendments of the Low NOx Heavy Duty Omnibus Regulation (HD Omnibus Regulation).

NBB is generally supportive of this regulatory effort, which is intended to provide near zero tailpipe emissions from future diesel engines with longer full useful life and controls that help ensure new diesel engines operate as designed in the field. Operating these new Ultra Low Emissions Diesel Engines (ULEDEs) on biodiesel and/or renewable hydrocarbon diesel under California's Low Carbon Fuel Standard in higher and higher concentrations will provide a viable and realistic option that is available today to reduce carbon, toxic, and smog-forming emissions in the diesel engines of the future.

While much of this regulation pertains to diesel engine, aftertreatment, and emissions and operational controls beyond NBB's purview, we would like to share some general comments and some specific information requested in the ISOR.

**Multiple CARB Programs Affecting Diesel Fuel Replacements Should be Reviewed for Potential Conflicts and Harmonized to Ensure They Are Directionally Consistent**

One general comment is to request that the California Air Resources Board (ARB) encourage its staff to review the interaction between the proposed Omnibus rule and other ARB rulemakings that impact diesel fuel and biodiesel/renewable hydrocarbon diesel. Such rulemakings include those associated with the Low Carbon Fuel Standard (LCFS), the Alternative Diesel Fuel (ADF) rule, and the upcoming Low Emissions Diesel (LED) rule. As the HD Omnibus Regulation is implemented, CARB should direct its staff to identify and reconcile any potential differences or conflicts in purpose or direction that may exist between these programs so they can all be implemented in a more productive and effective manner.

The Proposal's Technical Foundation Contains Several Data Gaps and Incorrect Assumptions about Biofuel Quality, Which Are Readily Addressed with Recent and Ongoing Work by NBB and Others

In regard to sharing of information, the ISOR did specifically state: "Although the aforementioned data and studies are reassuring, because advanced aftertreatment has not been tested on biodiesel out to the longer useful lives recommended, and because current biodiesel blend stock recommendations are less protective than current DEF standards, CARB staff plans to continue to seek information on lifetime exposure/emissions impact relationships, prevailing fuel metals levels and to evaluate the potential need for future changes to biodiesel standards."

NBB has led the ASTM specification efforts on biodiesel since 1994 and has conducted significant technical efforts over the years as diesel fuel, diesel engines and aftertreatment systems have changed. These technical efforts, performed jointly with our partners in the diesel engine community, have led to changes in the ASTM biodiesel standards that help ensure biodiesel blends perform similar or better than petrodiesel alone. NBB has already begun initial technical efforts to support future ULEDE engines, and the ARB and California customers can be assured the biodiesel industry will work to address any technical issues or needs moving forward.

To this end, one of the questions from some OEMs regarding biodiesel is the level of biodiesel reaction catalyst metals (sodium, Na; potassium, K) and potential metals which could come from wash water used in most biodiesel processes (calcium, Ca; magnesium, Mg). Specifications of 5 parts per million (ppm) maximum combined sodium plus potassium (Na+K) and 5 ppm maximum combined calcium plus magnesium (Ca+Mg) were implemented through discussions and negotiations with the engine community through the ASTM process in the early 2000's in preparation for aftertreatment associated with the transition to 15 ppm maximum Ultra-Low Sulfur Diesel (ULSD). As discussed in the ISOR, field collected samples and samples collected by CARB for U.S. EPA indicated biodiesel metals from actual production are substantially lower than the current ASTM specification limits.

To further quantify this, NREL has recently partnered with the NBB and biodiesel suppliers who participate in the industry's BQ-9000 fuel quality program to collect, statistically analyze, and publish on-going values for various critical ASTM B100 properties that are requirements of the BQ-9000 program. BQ-9000 companies represent over 90% of the biodiesel produced in the U.S. each year, so the data set is quite robust with over 400 individual results for each of calendar year 2017 - 2019. We attach the results here and submit them for the public record, and they can also be downloaded from the NREL web site at:

- 2017: <https://www.nrel.gov/docs/fy20osti/75795.pdf>
- 2018: <https://www.nrel.gov/docs/fy20osti/75796.pdf>
- 2019: <https://www.nrel.gov/docs/fy20osti/76840.pdf>

This data, which represents over 90% of the biodiesel in the U.S., showed the average level of Ca+Mg in pure biodiesel (B100) of around 0.3 ppm, with a 95<sup>th</sup> percentile of 2 ppm or lower which is substantially less than the current B100 specification of 5 ppm maximum Ca+Mg. Average values for sodium plus potassium (Na+K) were around 0.7 ppm, with the 95<sup>th</sup> percentile

of 2.5 ppm or lower compared to the current specification of 5 ppm maximum. When considering most biodiesel today is used at the B20 level, the metals from biodiesel in B20 would account for 5 times less than that found in the B100. This is a substantial and robust data set which provides additional confidence in the quality of biodiesel moving forward. NBB will continue to work with our partners in the diesel engine industry to confirm biodiesel's performance in the new engines and after-treatment of the future as we have done over the last 25 years.

#### The Proposed Regulation Correctly Allows the Use of Commercially Available Compliant Diesel and Biofuel Blends

NBB also supports CARB's proposal to "not prohibit the use of commercially available diesel and biofuel blends that meet California's fuel specifications in title 4, CCR, § 4148." There has been significant experience in California and around the country with B20 and lower blends in the market today meeting the pertinent ASTM specifications (D975, D7467) that show similar or better overall performance and vehicle emissions with equipment currently in the market as those run on petrodiesel alone. As stated earlier, NBB has already begun technical efforts to support future ULEDE engines. If this research, or data from the field, indicates the need for changes to the biodiesel standards, the biodiesel industry will work to implement those changes through discussions and negotiations with the engine community through the well-established and recognized ASTM process. To the extent changes are needed for biodiesel, similar changes would likely be needed for the petroleum-based fuels as well. It should be noted, however, that some field problems may be due to fuel mishandling or contamination that would not be addressed through the fuel specifications but rather through fuel quality enforcement activities. If this is the case, NBB stands in full support of enforcement of fuel quality by local, state, and federal authorities with jurisdiction over these matters.

#### Certification Grade Fuel Should Be Used for In-Use Testing

Lastly, there was a stakeholder suggestion that CARB revise its proposal to allow the engine manufacturers to prohibit the use of commercially available fuels for purposes of in-use testing. We believe this suggestion misses the point. NBB does not believe the use of commercially available fuels will be an issue with biodiesel blends or renewable hydrocarbon diesel blends. However, for the in-use testing provisions of the HD Omnibus Regulation, we believe it would be more appropriate to require the use of certification grade test fuel, rather than commercially available fuel. This is because CARB would get a more accurate and reliable assessment of engine/aftertreatment performance if that testing were conducted using certification grade fuel rather than the fuel the vehicles are actually using at the time. This testing is meant to be a confirmative evaluation of the engine and vehicle hardware, not of comparative differences that may exist between the various fuels approved by CARB. Utilizing the certification fuel would remove one source of potential variation for the in-use results and provide a more accurate representation of the vehicle performance over time. We recommend ARB consider that change in the final version of the regulation.

## Conclusions

We appreciate and have enjoyed the close collaboration with CARB over the years in furtherance of our mutual environmental and human health protection goals. We look forward to biodiesel and renewable hydrocarbon diesel continuing to play an important role in reducing the carbon and air quality impacts associated with conventionally fueled compression ignition (diesel) engines. California customers and CARB can be assured the biodiesel industry will take any necessary steps, in a proactive manner, to help ensure the future and performance of biomass-based diesel fuels in California and the rest of the U.S.

Sincerely,

Scott Fenwick  
Technical Director