October 19, 2020

Mr. Richard Corey
California Air Resources Board
1001 I ST
Sacramento, CA 95814

Subject: CARB's Proposed Approval of R55/B20

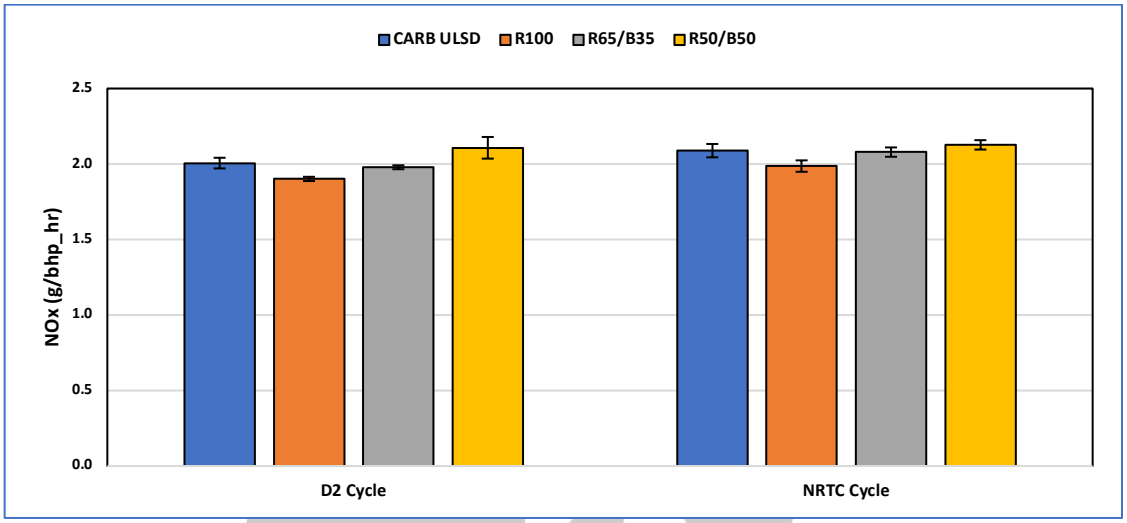
Dear Mr. Corey:

Thank you for the opportunity to publicly comment on CARB's "Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels". The intent of this letter is to address CARB's proposal "to allow a second approved ADF formulation that includes renewable diesel blends with biodiesel and conventional diesel consisting of at least 55 percent renewable diesel and at most 20 percent biodiesel (R55 B20)." In June 2020, California Fueling was provided with Low Emissions Diesel ("LED") program's reference and candidate fuel physical properties and emissions results for R100, R65/B35 and R50/B50. The results of CARB's LED study must be considered in place of the now outdated 2009 study that CARB references in its proposed changes notice. **In summary, the LED program emissions data that CARB has developed does not support its recommendation to approve an R55/B20 blend.**

Earlier this year, CARB evaluated various renewable diesel and biodiesel blends as part of the LED program. The LED's test program legacy vehicle emissions results are provided on page 2. CARB's claim that "Staff's Supplemental Disclosure Discussion Analysis **assumed a NOx decrease of 10 percent for R100**", based on the staff report for the 2015 ADF regulation is now outdated based on the LED program's findings. CARB's 10% renewable diesel NOx reduction claim, based on the LED program emission data, is clearly inaccurate by a twofold factor. Based on the LED study's legacy vehicle emissions data, renewable diesel provides **only a 5% NOx reduction** versus a CARB ULSD. This finding alone significantly impacts CARB's past Environmental Analysis which will be addressed in a separate public comment. CARB has stated that B20 increases NOx 4%. Based on R100 reducing NOx by 5%, R55 is not capable of overcoming the 4% NOx increase from the addition of 20% biodiesel.

Questions: Did CARB consider the LED program's emissions data when drafting the proposed approval of R55? If not, why?

Subarticle 2. Commercialization of Alternative Diesel Fuels, §2293 states its "Purpose" as "[t]his regulation [the ADF] is intended to foster the introduction and use of innovative ADFs in California **while preserving or enhancing public health, the environment and the emissions benefits of the existing motor vehicle diesel fuel regulations.**" CARB's proposal to allow



widespread use of R55 B20 fails to meet the preservation aspects of the purpose and will increase NOx.

From July to August 2019 CARB evaluated various NOx Mitigants and concluded that "[s]tatistical analysis of the NOx results demonstrated that all additive blends tested failed the certification test criteria for NOx because the additive blends did not reduce NOx emissions to a level equivalent to the reference fuel." In response, CARB are proposing to revoke all existing ADF Executive Orders effective April 1, 2021. After the NOx Mitigant program was completed, CARB initiated the LED testing program.

For the NOx Mitigants and LED programs, CARB elected to use two different reference fuels. The NOx Mitigant program reference fuel was selected by happenstance wherein CARB permitted CE-CERT to purchase what was readily available in the marketplace and took no direct involvement in the fuels' selection process. With the LED program, however, CARB took a much different approach. In fact, CARB enlisted the assistance of various third-party stakeholders to formulate and obtain all test fuels. Following is a physical property comparison of the NOx Mitigant and LED program's reference fuels.

Property	Fuel Specifications	NOx Mitigant Program	LED Program
Sulfur Content	15 ppm maximum	<0.5	<0.5
Aromatic Hydrocarbon Content, Volume %	10 % maximum	6.5	**9.9**
Polycyclic Aromatic Content, Weight %	10 % maximum 1.4 % maximum	0.2	**1.2**
Nitrogen Content	10 ppm maximum	<1	**13.8**
Unadditized Cetane Number	48 minimum	53.3, 53.2, 51.9	**48.1, 48.2, 48.3**

It's glaringly obvious that the LED program's reference fuel is significantly different from the NOx Mitigant program and far more favorable to successful ADF certification testing. Maximizing reference fuel aromatics, polycyclics and nitrogen while minimizing reference fuel cetane number all serve to maximize a reference fuel's emissions which is advantageous when conducting ADF testing. Maximizing reference fuel emissions was clearly CARB's objective with the LED program, but not with the NOx Mitigant program. Never before has CARB taken so much interest in formulating fuels as with the LED program.

Questions: Why did CARB use two different reference fuels for the NOx Mitigant and LED programs? Why in the case of the LED program did CARB enlist the assistance of various third parties in formulating a reference fuel? Does CARB agree that the reference fuel formulated for the LED program is more favorable to successful certification testing as compared to the NOx Mitigant program? If not, then explain the scientific basis for such a view given the above noted reference fuel physical properties and significant differences in aromatics, polycyclics and nitrogen (the higher the better) and cetane number (the lower the better).

The ADF testing protocol requires biodiesel to have a maximum cetane number of 50. For the LED program, CARB elected to use a biodiesel with a cetane number (cetane number test results of 56.7, 55.8 and 56.5) much greater than 50 and in fact was clearly high saturation biodiesel (wherein the ADF protocol requires low saturation). Such a biodiesel is not only unrepresentative of marketplace biodiesel but more importantly when used in formulating a candidate fuel (80% reference fuel, 20% biodiesel) minimizes emissions increases incurred through the addition of 20% biodiesel which is again favorable to ADF emissions testing. In fact, CARB went so far as to determine the compositional constituents of the high saturation biodiesel used in the LED testing to ensure its chemical makeup was aligned with their desired outcome.

Questions: Why did CARB use two different biodiesels for the NOx Mitigant and LED programs? Why in the case of the LED program did CARB enlist the assistance of various third parties in obtaining a biodiesel? Why didn't CARB use a biodiesel that met the ADF specification or one that's market representative? Does CARB agree that the biodiesel acquired for the LED program is more favorable to successful certification testing that the biodiesel used in NOx Mitigant testing? If not, then explain the scientific basis for such a view given the cetane number difference (in biodiesel's case the higher the better). Why did CARB compositionally analyze the biodiesel used in the LED testing?

For the LED program, CARB maximized reference fuel emissions and then selected a biodiesel that when blended to B20 with the reference fuel would create a candidate fuel that minimizes emissions. Even in these gamed circumstances, renewable diesel did not perform as expected and provided only a 5% NOx reduction versus the CARB ULSD reference fuel.

Prior to the issuance of CARB's most recent proposed ADF changes, we asked when the LED program data would be placed in the public domain. We were informed that the LED program report would be issued by the end of the year. Given the overlapping efforts between the ADF and the LED programs and the importance of the ADF, CARB should first publish the full LED emissions database so that stakeholders can have a more complete picture of the proposed ADF changes in the context of the best available data before implementing any proposed ADF modifications.

Question: Why has CARB not issued the LED program report especially in light of the overlap with the ADF program wherein all stakeholders would have access to the data in CARB's possession for months? CARB should address the clear conflict of interest in not placing the LED data in the public domain before ruling on the proposed ADF changes?

In conclusion, the most recent LED program emissions data, which must be considered by CARB as opposed to the 2009 study, indicates that renewable diesel (R100) reduces NOx by 5%, not by 10% as previously claimed by CARB. As previously seen in other work, the LED program NOx emissions as a function of the renewable diesel to biodiesel ratio is linear. Considering the LED program's many favorable fuel attributes, the fact that NOx emissions results do not match with CARB's past views deserves an explanation, stakeholder review and potentially further testing.

For all the reasons stated herein, CARB should not only remove their R55/B20 allowance from the ADF but should hit the pause button on changes to the ADF until the LED program data is made publicly available and can be evaluated by all stakeholders.

Respectfully,

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CALIFORNIA FUELING