State of California
AIR RESOURCES BOARD

Final Statement of Reasons for Rulemaking, Including Summary of Comments and Agency Response

Public Hearing to Consider Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels

Public Hearing Date: April 23, 2020
Agenda Item No.: 20-4-4

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I. General

The Staff Report: Initial Statement of Reasons for Rulemaking (staff report), entitled "Public Hearing to Consider Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels," released January 7, 2020, is incorporated by reference herein. The staff report contains a description of the rationale for the proposed amendments. On January 7, 2020, all references relied upon and identified in the staff report were made available to the public.

In this rulemaking, the California Air Resources Board (CARB or Board) is adopting amendments to the Regulation on the Commercialization of Alternative Diesel Fuels (ADF regulation), to reinforce the emissions certification testing requirements and require biodiesel additives and alternative diesel fuel (ADF) formulations to be certified uniformly according to new certification procedures. The amendments will further ensure that additives or ADF formulations are certified to mitigate potential oxides of nitrogen (NOx) emissions increases from the use of biodiesel.

The Board approved the ADF regulation for adoption on September 25, 2015, and the regulation entered into effect on January 1, 2016.

Beginning in 2016, regulated parties began reporting produced, imported, and blended volumes of all biodiesel blendstocks and biodiesel blends, pursuant to the reporting and recordkeeping requirements of the biodiesel in-use provisions of the regulation. The biodiesel in-use requirements, which are designed to mitigate potential NOx increases associated with the use of biodiesel, went into effect on January 1, 2018, and require all biodiesel blends above the NOx control level to mitigate NOx by using additives or fuel formulations approved or certified by CARB.

In 2018, staff proposed amendments to the ADF biodiesel in-use NOx mitigation sunset provisions and certification requirements of the regulation to ensure long-term NOx mitigation. The amendments were adopted by the Board on September 27, 2018, and took effect in January 2019.

The amendments to the regulation considered in this rulemaking were initiated with the publication of a notice in the California Notice Registrar on January 7, 2020, and notice of a public hearing scheduled for February 27, 2020.[1] CARB released a notice of postponement on February 10, 2020, stating that the public hearing was postponed to March 26, 2020.[2] CARB released a second notice of postponement on March 16, 2020,

[1] See "Notice of Public Hearing to Consider Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels." CARB. Posted January 7, 2020. Available online at: https://ww2.arb.ca.gov/rulemaking/2020/adf2020.

[2] See "Notice of Postponement – Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels." CARB. Posted February 10, 2020. Available at https://ww2.arb.ca.gov/rulemaking/2020/adf2020.

indicating that further notice would be provided when the public hearing was rescheduled. CARB released notice on April 10, 2020, indicating that the public hearing had been rescheduled for April 23, 2020. The staff report, full text of the proposed regulatory language, and other supporting documentation were made available for public review on January 7, 2020, and for comment, starting on January 10, 2020, and received no later than February 24, 2020, with additional oral and written comments submitted at the April 23, 2020, Board Hearing. The text of the originally proposed regulation was included in Appendix A of the staff report. The regulatory amendments as proposed would:

- Reinforce the process for certification of additives and ADF formulations;
- Require, in addition to various additional clarifying terms, 1) emissions testing at two independent labs, 2) additional emissions testing with a commercially available Designated Equivalent Limits Diesel, 3) presence of a qualified observer during test fuel preparation and emission testing, and 4) more stringent chain of custody demonstration provisions. The amendments would require that any certified additive or alternative diesel fuel formulation would need to pass a statistical test for emissions equivalence with diesel for both NOx and particulate matter (PM) at both emissions testing labs and on both diesel test fuels;
- Add a renewable diesel blend with biodiesel and conventional diesel consisting of at least 75 percent renewable diesel and at most 20 percent biodiesel as an approved emissions equivalent formulation;
- Add a renewable diesel blend with biodiesel and conventional diesel consisting of at least 55 percent renewable diesel and at most 20 percent biodiesel as an approved emissions equivalent formulation;
- Require all biodiesel additives and ADF formulations, except for the approved additive DTBP and renewable diesel/biodiesel formulations incorporated in the regulation, to be certified according to new certification procedures.

At its April 23, 2020, public hearing, the Board was informed of the proposed amendments to the ADF regulation. The Board approved for adoption the proposed amendments at the April 2020 Board Hearing, but directed the Executive Officer, through Resolution 20-2, to determine if additional conforming modifications to the regulation were appropriate and to make any proposed modified regulatory language available for public comment, with any additional supporting documents and information, for a period of at least 15 days in accordance with Government Code section 11346.8. The Board further directed the Executive Officer to consider written comments submitted during the public review period and make any further appropriate modifications available for public comment for at least 15 days. The Executive Officer was directed to present the regulation to the Board for further consideration if warranted, and if not, the Executive Officer shall take final action to adopt the regulation after addressing all appropriate conforming modifications.

A. Mandates and Fiscal Impacts to Local Governments and School Districts

The Board has determined that this regulatory action will not result in a mandate to any local agency or school district, the costs of which are reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code.

Local governments and school districts are not subject to the regulation, and as such would not incur any additional administration costs based as a result of compliance with the proposed amendments to the regulation. The proposed amendments to the regulation reinforce the process for certification of additives or ADF formulations and provide an alternative approved emissions equivalent formulation. Depending on regulated entities approaches to complying with the proposed amendments to the regulation, a small subset of local entities and school districts may see added costs or cost savings depending on fuel choices. However, the cost impact on local government and school districts is anticipated to be small and likely indistinguishable from normal price volatility at the pump. Those potential added costs are not a mandate under Government Code section 17500 et seq.

B. Consideration of Alternatives

For the reasons set forth in the staff report, in staff's comments and responses at the hearing, and in this FSOR, the Board determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed, or would be as effective and less burdensome to affected private persons, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law than the action taken by the Board. Further, none of the options that would have enabled California to meet the SB 32 goals were as cost effective as the proposed regulation and substantially address the public problem stated in the notice.

The Executive Officer analyzed three alternatives to the proposed regulation. The first alternative is to take no action. Under this alternative, no revisions would be made to the existing regulation, and CARB and regulated entities would continue to operate pursuant to the requirements of the regulation and current in-use requirements. If CARB were to take no action, the additives and formulations approved to mitigate potential NOx increases from the use of biodiesel may not achieve the emissions benefits of the regulation as originally adopted. The second alternative would disallow the use of biodiesel blends above five percent by volume with California diesel fuel. Under this alternative, the short-term impacts are expected to be insignificant, however future biodiesel use could be constrained by an effective upper limit lower than the current 20 percent blend limit. For more information regarding these alternatives, please see

Chapter IX of the staff report. An additional alternative considered, which was not included in the staff report, would replace certain prescriptive elements of the performance-based certification testing while continuing to require candidate fuels to demonstrate emissions equivalency with CARB diesel. Under this alternative, the absence of specific and rigorous testing requirements would eliminate uniformity between testing programs and make it difficult for staff to ascertain whether additives and ADF formulations performed properly.

C. Modifications Approved at the Board Hearing and Provided for in the First 15-Day Comment Period

Pursuant to Board direction provided at the April 23, 2020 meeting, CARB released the first Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information (15-Day Notice) on October 14, 2020, which notified the public of additional documents added into the regulatory record and presented additional modifications made to the regulatory text after consultation with stakeholders.[3]

D. Modifications Approved at the Board Hearing and Provided for in the Second 15-Day Comment Period

Pursuant to Board direction provided at the April 23, 2020 meeting, CARB released a Second Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information (15-Day Notice) on January 12, 2021, which notified the public of additional documents added into the regulatory record and presented additional modifications made to the regulatory text after consultation with stakeholders.[4]

E. Non-Substantial Modifications

Subsequent to the 15-day public comment period mentioned above, staff identified the following additional non-substantive changes to the regulation:

- Appendix 1 of Subarticle 2: Added and struck out a comma after "purposes" in the first sentence of the second paragraph to address that was incorrectly excluded.

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[3] See "Notice of Public Availability of Modified Text and Availability of Additional Documents." CARB. Posted October 14, 2020. Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf.

[4] See "Second Notice of Public Availability of Modified Text and Availability of Additional Documents." CARB. Posted January 12, 2021. Available online at: https://ww3.arb.ca.gov/regact/2020/adf2020/second15daynotice.pdf.

- Subsection (a)(1)(B)1. of Appendix 1 of Subarticle 2: Added underline to subsection heading "1." that was incorrectly excluded.
- Subsection (a)(2)(A)1.a. of Appendix 1 of Subarticle 2: Add underline to the space between "identities" and "and" that was incorrectly excluded.
- Subsection (a)(2)(A)1.c. of Appendix 1 of Subarticle 2: Removed the underline of "est" that was incorrectly included in the second instance of the word "test".
- Subsection (a)(2)(D) of Appendix 1 of Subarticle 2: Changed "ASTM D6890-13bel" to "ASTM D6890-13be1" in Table A.8 to correct a typo.
- Subsection (a)(2)(E)1. of Appendix 1 of Subarticle 2: Changed "Reference Fuel Specifications" to "Reference CARB Diesel Specifications" to be consistent with terminology throughout the Regulation Order.
- Subsection (a)(2)(J) of Appendix 1 of Subarticle 2: Added underline to subsection heading "(J)" that was incorrectly excluded.

The above described modifications constitute non-substantial changes to the regulatory text because they more accurately reflect the numbering of a section and correct spelling and grammatical errors, but do not materially alter the requirements or conditions of the proposed rulemaking action.

II. Documents Incorporated by Reference

The regulation adopted by the Executive Officer does not incorporate by reference any documents.

III. Summary of Comments Made During the 45-Day Comment Period and Agency Responses

Chapter III of this FSOR contains all comments submitted during the 45-day comment period and the April 23, 2020 Board Hearing regarding the proposed amendments or the procedures followed by CARB in proposing the amendments, together with CARB's responses. The 45-day comment period commenced on January 10, 2020, and ended on February 24, 2020, with additional comments submitted at the April 23, 2020 Board Hearing on the proposed amendments.

CARB received six comment letters during the 45-day comment period and eight comment letters during the Board Hearing. In addition, 13 stakeholders gave oral testimony at the April 23, 2020 Board Hearing. This FSOR includes responses to all comment letters, and comments included in the Board meeting transcript. Commenters included additive production companies, alternative fuel producers and marketers, an environmental non-profit organization, and representatives of trade associations for biodiesel producers, engine manufacturers, refiners, and petroleum marketers and service stations. Comments are categorized and grouped by topic in this document wherever possible.

Table III-2 below lists the commenters who submitted oral and/or written comments on the proposed amendments during the 45-day comment period and at the April 23, 2020 Board Hearing, identifies the date and form of their comments, and shows the abbreviation assigned to each.

The comment letters for the 45-day, first 15-day, and second 15-day comment periods are available here: https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=adf2020. The individually submitted comment letters for the 45-day and 15-day comment periods are available (in Appendix A to the FSOR) here: https://ww2.arb.ca.gov/rulemaking/2020/adf2020

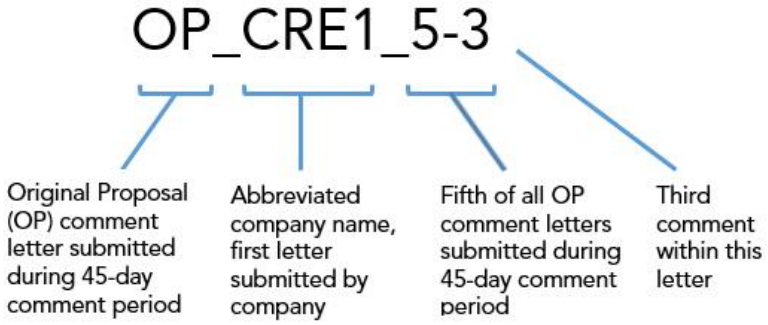
Note that some comments were scanned or otherwise electronically transferred, so they may include minor typographical errors or formatting that is not consistent with the originally submitted comments. However, all content reflects the submitted comments. The transcript of verbal testimony presented during the Board Hearing is available here: https://ww3.arb.ca.gov/board/mt/2020/mt042320.pdf.

A. List of Commenters

The comment letters are coded by the order and comment period in which they were received and by the name of the organization or individual commenting. Table III-1 lists the comment letter codes based on the comment period.

Table III-1. Comment Letter Codes

Comment Letter Codes	
Comment Code	**Comment Period Received**
OP, for original proposal	Comments received during the 45-day comment period of the original proposal, January 10 – February 24, 2020
B, for Board Hearing written comments	Comments received as written materials during the Board Hearing, April 23, 2020
T, for testimony at the Board Hearing	Comments received as oral testimony at the Board Hearing, April 23, 202
FF, for fifteen-day changes	Comments received during the 15-day comment period, October 14 – October 29, 2020



Written comments were received during the 45-day comment period in response to the January 10, 2020 public hearing notice, and written and oral comments were presented at the Board Hearing. Listed below are the organizations and individuals that provided comments during the 45-day comment period:

Table III-2. List of Commenters During the 45-Day Comment Period

Commenter Letter Code	Commenter
OP_CAF1_1	Patrick McDuff, California Fueling, LLC. 45-Day Comment: January 10, 2020
OP_CAF2_2	Patrick McDuff, California Fueling, LLC. 45-Day Comment: January 17, 2020
OP_CAF3_3	Patrick McDuff, California Fueling, LLC. 45-Day Comment: February 17, 2020
OP_EMA1_4	Tia Sutton, Truck and Engine Manufacturers Association 45-Day Comment: February 24, 2020
OP_CRE1_5	Steve Bond, Crimson Renewable Energy 45-Day Comment: March 30, 2018
OP_BC1_6	George Sturges, BEST Corp. 45-Day Comment: February 24, 2020
B_IWP1_B1	Eric Kayser, Imperial Western Products Board Hearing Comment: April 23, 2020
B_CABA1_B2	Tyson Keever, California Advanced Biofuels Alliance Board Hearing Comment: April 23, 2020
B_EBR1_B3	Joe Gershen, Encore BioRenewables LLC Board Hearing Comment: April 23, 2020
B_REG1_B4	Scott Hedderich, Renewable Energy Group Board Hearing Comment: April 23, 2020
B_OF1_B5	Rebecca Boudreaux, Oberon Fuels Board Hearing Comment: April 23, 2020
B_NL1_B6	Jennifer Case, New Leaf Board Hearing Comment: April 23, 2020
B_NBB1_B7	Shelby Neal, National Biodiesel Board Board Hearing Comment: April 23, 2020
B_CRE2_B8	Harry Simpson, Crimson Renewable Energy Board Hearing Comment: April 23, 2020
T_OF2_T1	Rebecca Boudreaux, Oberon Fuels. Oral Testimony: April 23, 2020
T_REG2_T2	Scott Hedderich, Renewable Energy Group Oral Testimony: April 23, 2020
T_WE1_T3	Mary Solecki, World Energy Oral Testimony: April 23, 2020
T_CABA2_T4	Joe Gershen, California Advanced Biofuels Alliance Oral Testimony: April 23, 2020
T_NBB2_T5	Shelby Neal, National Biodiesel Board Oral Testimony: April 23, 2020

Commenter Letter Code	Commenter
T_CABA3_T6	Rebecca Baskins, California Advanced Biofuels Alliance Oral Testimony: April 23, 2020
T_CAF4_T7	Yvette McDuff, California Fueling, LLC Oral Testimony: April 23, 2020
T_CAF5_T8	Patrick McDuff, California Fueling, LLC Oral Testimony: April 23, 2020
T_CRE3_T9	Harry Simpson, Crimson Renewable Energy Oral Testimony: April 23, 2020
T_NL2_T10	Jennifer Case, New Leaf Oral Testimony: April 23, 2020
T_IWP2_T11	Eric Kayser, Imperial Western Products Oral Testimony: April 23, 2020
T_SCC1_T12	Kathryn Phillips, Sierra Club California Oral Testimony: April 23, 2020
T_BC2_T13	George Sturges, BEST Corp. Oral Testimony: April 23, 2020

B. Scope and Objectives of the Proposed Amendments

B-1. *Scope of the Proposed Amendments*

Comment: We support all CARB's proposed chain of custody and verification processes which were followed by California Fueling, LLC ("California Fueling") as well as most, but unfortunately not all, ADF Executive Order ("EO") holders. It is our belief that these changes alone will prevent a future fraud.

…

As we said at the onset and want to stress again, California Fueling supports all CARB's newly proposed chain of custody and verification processes. It is our belief that these changes are the only required changes to the ADF at this time. (OP_CAF3_3-1)

Comment: It is NBB's understanding that reformulation of CARB diesel is a potential strategy being considered for the LED rulemaking, which again is the appropriate mechanism for seeking further NOx reductions. The LED rulemaking is not slated to be completed until sometime in the 2021- 2022 timeframe, and only after extensive testing on next-generation engines and fuel formulations has been completed by CARB staff, as well as completing the requisite environmental and economic impacts analysis required by State law.[17] The proposed amendments' environmental and economic impacts of imposing requirements that go beyond maintaining equivalency with current standards have not been analyzed in the staff report for this rulemaking, thereby exposing it to potential challenges.

[17] See https://ww2.arb.ca.gov/sites/default/files/2019-10/Fuels_Update_Concept_Paper_10-2-19.pdf, p. 3, accessed Feb. 9, 2020. (B_NBB1_B7-8)

Comment: Therefore, it is with some reluctance that we write to urge CARB to reject the ADF amendments as presented, and instead, direct staff to re-engage stakeholder in an effort to develop a better data driven set of amendments that will uphold the integrity of the program.

The concepts in this proposal have broad implications, which extend beyond a simple rule change or a technical clean up. While we perceive these concepts as an honest effort to address potential shortcomings in the additive testing environment, we are very concerned. They have the potential to negatively impact a broad segment of suppliers of alternative diesel fuels – both biodiesel and renewable diesel which is critical to the success of the program and clean air in California. (B_REG1_B4-1)

> **Agency Response:** Staff appreciates the feedback from the commenters, including support of the proposed amendments related to chain of custody and verification. The ADF regulation specifies the provisions for certification of additives and ADF formulations to mitigate potential NOx emissions increases from the use of biodiesel. Based on documented issues included and discussed in this rulemaking record regarding the NOx mitigation efficacy of additives currently certified under the ADF regulation, additional amendments are necessary to reinforce the originally intended NOx mitigation efficacy of additives and ADF formulations. These amendments are specific to the certification of biodiesel additives and formulations and are distinct from any Low Emission Diesel (LED) rulemaking or other associated NOx mitigation strategies.
>
> Staff disagrees with the commenter's suggestion that the proposed amendments impose requirements that go beyond maintaining equivalency with current standards. Please refer to response C-2 in this chapter regarding the proposed amendments' objective to achieve NOx neutrality for ADFs when compared with conventional diesel. Please also see response C-3 in this chapter regarding fuel supply and availability and response F-2 in this chapter regarding the potential impacts of the amendments on the biodiesel and renewable diesel markets.

B-2. *Objectives of the Proposed Amendments*

Comment:

1. **"II. THE PROBLEM THAT THE PROPOSAL IS INTENDED TO ADDRESS**

…

A. **DESCRIPTION OF PROBLEMS THAT THIS PROPOSAL IS INTENDED TO ADDRESS**

…. As the ADF regulation has evolved over time, various certified products have been subject to somewhat different testing programs, while staff have developed experience in how best to ensure ADFs meet program goals."

a. ***Did the "somewhat different testing programs" all meet written ADF regulation requirements, such as the definition of Reference CARB Diesel in 2293.2 (a)(24) and the requirements of Appendix 1 of Subarticle 2 (a)(2)(E), and/or were The candidate fuel production requirements met as listed in Appendix 1 of Subarticle 2 (a)(2)(B) as applicable to the type of formulation ADF formulation or Biodiesel additives?***

b. ***If the answer isn't "yes" and written regulations weren't followed, then how will implementing new written regulations ensure a uniform playing field and ensure that ADF's meet the desired objectives?***

2. "Staff are undertaking this rulemaking to ensure that all ADFs are certified in accordance with rigorous procedures, ensuring a uniform playing field and appropriate protections for public health."

a. ***BEST would certainly be in agreement with any appropriate CARB rulemaking and implementation that would meet the objective listed above. However, for CARB regulation to meet its listed objectives, it's imperative that written regulations are clear, concise, include all procedures, and that written regulation is followed without discretion. Discretion is discriminatory, resulting in different testing programs, and does not ensure a uniform playing field (essentially the opposite of the objective).*** (OP_BC1_6-1)

Agency Response: Staff agrees that it is imperative that written regulations are clear, concise, include all procedures, and that written regulations are followed.

Comment: Furthermore, there was no effort in this rulemaking to seek those further NOx reductions through a reformulation of CARB diesel, a potentially greater source of NOx reductions than the biofuels that are furthering the LCFS objectives. (B_NBB1_B7-7)

> **Agency Response:** Reformulation of CARB diesel for NOx reductions is outside the scope of the ADF regulation and these amendments.

B-3. *Amendments are Flawed*

Comment: We are in agreement with the NBB and CABA that the proposed amendments are both substantively and procedurally flawed. (B_IWP1_B1-1)

Comment: Due to the technical issues laid out in the National Biodiesel Board's (NBB) comments and the current state of the California biomass-based diesel industry, we must regretfully oppose the proposed amendments to the Alternative Diesel Fuels Regulation. (B_CABA1_B2-1)

Comment: I think it's safe to say that I'm a lifetime advocate for California's carbon regulations as well as the pragmatic deployment of them in order that they be successful. It is with that in mind that I have to oppose the proposed ADF amendments you are considering because they are flawed, not based on CARB's own sound scientific data, will economically harm California biodiesel producers and consumers, and I believe will undermine the Board's objectives. (B_EBR1_B3-1)

Comment: [W]e regretfully must oppose the proposed ADF amendments you are considering because they are flawed….

…

Further, the concerns underpinning the proposed amendments can be addressed in a more scientifically valid and robust way. (B_NBB1_B7-1)

I think it's safe to say that I'm a lifetime advocate for California's carbon regulations, but I also strongly endorse the pragmatic deployment of these regulations in order to ensure that they are successful, that pragmatism informs my decision to oppose the proposed ADF amendments you're considering, because they're flawed quite simply. They're not based on CARB's own sound scientific data. They'll harm California biodiesel producers, all of which are in disadvantaged communities, I'd like to point out, and I believe they will undermine the Board's objectives. (T_CABA_T4-1)

> **Agency Response:** Commenter's objections are general rather than specific. CARB rejects these general objections based on the rationale and supporting scientific data and economic analysis supporting the proposed amendments in the staff report and its appendices.

For more regarding public process and timing, please see response H-1 in this chapter. Please also see responses F-1, F-2, and F-3 in this chapter for more information regarding CARB's economic analysis.

B-4. *Voluntary Program*

Comment: Please also remember this is not a voluntary program. Lack of compliance means your company is going to go out of business. (T_CABA2_T4-2)

Comment: I'd like to quickly respond to staff's comment earlier that during the presentation that ADF is voluntary or the implication that this is a voluntary set of regs. It is not voluntary. As a biodiesel producer, I can assure you that any biodiesel sold in California must comply with the ADF regs.[*sic*] (T_CRE3_T9-1)

Agency Response: CARB does not require any company to produce or distribute biodiesel or mitigation additives, but once entities such as producers or suppliers of additives for biodiesel NOx mitigation and biodiesel producers and suppliers respond to the financial opportunity of selling biodiesel blends in California, those entities are subject to the requirements of the ADF regulation. The ADF regulation requires those who are covered by the program to mitigate potential excess NOx emissions from biodiesel in accordance with the ADF regulation.

C. Proposed Alternative Diesel Fuel Formulation

C-1. *Approval of ADF Formulation*

Comment: Dating back to August 2018, California Fueling has requested protocol approval of an ADF formulation (RHD and biodiesel based) testing plan. CARB rejected all such requests, indicating at various times that "ADF certification for renewable diesel is only available for producers of renewable diesel", and that California Fueling is not a "producer". While CARB declined our proposal pathway, they are apparently not just reversing course by allowing anyone access to the proposed ADF Public Formulation but are technically justifying their decision based on data which does not meet the ADF's requirements, current or future. CARB are obviously doing so to create a new pathway while potentially terminating another (NOx Mitigants). (OP_CAF2_2-1)

Agency Response: Commenter's characterization of staff's proposal to include an approved ADF formulation containing renewable diesel is incorrect. The proposed amendments do not modify the provision in the ADF regulation that allows only producers or importers to certify ADF formulations containing renewable diesel. Please see response to comment OP_CAF2_2-2 below regarding staff's justification for the approved ADF formulations.

Comment: Furthermore, in our discussions with CARB, representatives indicated that,

> "[r]enewable diesel is used as an offsetting factor in the ADF regulation to offset the NOx emissions of B5. To ensure that renewable diesel used as part of a certification is consistent with the offsetting factor provision we require the RD to be associated with a specific RD producer."
>
> **Question 1.:**[*sic*] **On what basis is CARB now justifying approval of an ADF Formulation that is not connected to a specific producer's RHD, and why is CARB not following the established ADF certification process?** (OP_CAF2_2-2)
>
> **Agency Response:** CARB proposes the two approved ADF formulations based on the combination of prior CARB testing,[5] stakeholder certifications of renewable diesel-based ADF formulations,[6] and staff's analysis of potential NOx emissions associated with the approved formulations described in the 15-day notice.[7] This prior CARB testing and these stakeholder certifications utilized different renewable diesels from different producers with a range of different properties. Staff has concluded, based on the empirical data from these studies and the emissions analyses, that the approved ADF formulations will be protective of NOx and PM emissions. Therefore, additional certification testing of the approved ADF formulations is not needed to demonstrate emissions equivalence of the approved ADF formulations.

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[5] See "CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California - "Biodiesel Characterization and NOx Mitigation Study."" Durbin, et al. October (2011). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20111013_carb%20final%20biodiesel%20report.pdf and "Proposed Regulation on the Commercialization of Alternative Diesel Fuels – Staff Report: Initial Statement of Reasons." CARB. January 2 (2015). Available at: https://www.arb.ca.gov/regact/2015/adf2015/adf15isor.pdf.

[6] See "State of California, Air Resources Board, Executive Order G-714-ADF02, Certification of Alternative Diesel Fuel Resulting in Emissions Equivalence with Diesel, Renewable Energy Group, Inc. – REG Proprietary Renewable Diesel." CARB. January 18 (2018). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20180118_reg_eo_adf02.pdf?_ga=2.249734726.1503545269.1569944917-1811565499.1498254338 and "State of California, Air Resources Board, Executive Order G-714-ADF09, Certification of Alternative Diesel Fuel Resulting in Emissions Equivalence with Diesel, Renewable Energy Group, Inc. – REG Proprietary Renewable Diesel #2." April 29 (2019). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20190429_reg_eo_adf09.pdf?_ga=2.118953985.941415474.1570463117-1811565499.1498254338.

[7] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels. CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf.

Comment: Question 2.:[*sic*] **Has CARB's stated position on RHD's offsetting factors being applied to specific RD producers changed and if so on what basis?** (CAF2_2-3)

> **Agency Response:** As indicated in response to comment OP_CAF2_2-2, prior CARB testing and stakeholder certifications have demonstrated that renewable hydrocarbon diesel (or renewable diesel) provides NOx reductions when compared to conventional diesel and biodiesel. CARB staff considered the offsetting factor that renewable hydrocarbon diesel provides and designed the regulatory amendments consistent with that effect.

Comment: Question 3: What work has CARB done to look at the varying composition of RHD, from source to source, and the associated impact of composition on emissions? (OP_CAF2_2-4)

> **Agency Response:** As indicated in the response to Comment OP_CAF2_2-2 above, CARB testing[8] and stakeholder certification testing of renewable diesel-based ADF formulations[9] utilized different renewable diesels from different producers with a range of different properties. The results of this testing indicated that increases in cetane number result in decreases in NOx emissions relative to CARB diesel; however, these changes in NOx emissions are relatively small compared to differences in NOx emissions between low- and high-saturation biodiesels versus CARB diesel.

Comment: At CARB's 12/13/19 workshop, we asked how the proposed ADF formulation was technically justified and we were referred to CARB's 2015 RHD multimedia assessment (MMA). In reviewing that document, we've identified an incongruency which we believe CARB must address before advancing the ADF formulation, never mind approving it.

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[8] See "CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California - "Biodiesel Characterization and NOx Mitigation Study."" Durbin, et al. October (2011). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20111013_carb%20final%20biodiesel%20report.pdf and "Proposed Regulation on the Commercialization of Alternative Diesel Fuels – Staff Report: Initial Statement of Reasons." CARB. January 2 (2015). Available at: https://www.arb.ca.gov/regact/2015/adf2015/adf15isor.pdf.

[9] See "State of California, Air Resources Board, Executive Order G-714-ADF02, Certification of Alternative Diesel Fuel Resulting in Emissions Equivalence with Diesel, Renewable Energy Group, Inc. – REG Proprietary Renewable Diesel." CARB. January 18 (2018). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20180118_reg_eo_adf02.pdf?_ga=2.249734726.1503545269.1569944917-1811565499.1498254338 and "State of California, Air Resources Board, Executive Order G-714-ADF09, Certification of Alternative Diesel Fuel Resulting in Emissions Equivalence with Diesel, Renewable Energy Group, Inc. – REG Proprietary Renewable Diesel #2." CARB. April 29 (2019). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20190429_reg_eo_adf09.pdf?_ga=2.118953985.941415474.1570463117-1811565499.1498254338.

Page 2 of the MMA indicates,

> "As specified in HSC 43830.8, a multimedia evaluation **must be based on the best available scientific data**, written comments, and any information collected by the Board in preparation for the proposed rulemaking."

Since the MMA was issued in May 2015, additional literature has been published contesting RHD's ability to reduce NOx in New Technology Diesel Engines (NTDE's). A 2016 study by Karavalakis et al.[1] using two NTDE's, a 2014 Cummins ISX15 400ST and a 2010 Cummins ISB6.7 220, both equipped with an oxidation catalyst, DPF and SCR, evaluated RHD (0, 20, 50, and 100%) blended with a CARB Diesel (19.9 vol% aromatics, no detected polycyclics and a 50.3 cetane number). The study found that increasing RHD levels increased ISX NOx in the UDDS cycle but decreased NOx in the HHDDT cycle. On the other hand, the ISB showed the reverse, increasing RHD levels decreased NOx in the UDDS cycle and increased NOx in the HHDDT cycle. CARB should now consider this robust body of evidence, which appears to be the most applicable technical document in the context of the ADF, RHD, NTDEs and the associated emissions. CARB's previous RHD conclusions are in conflict with the Karavalikis data, the pedigree of which qualifies as "the best available scientific data". At a minimum, CARB should stop from enabling an ADF Public Formulation which is certain to damage the environment until further testing is completed.

[1] "Emissions and Fuel Economy Evaluation from Two Current Technology Heavy Duty Trucks Operated on HVO and FAME Blends." SAE Int. J. Fuels Lubr. 9(1):2016, https://doi.org/10.4271/2016-01-0876.

While CARB's 2011 Study, referenced in the 2015 RHD multimedia assessment demonstrated RHD's NOx emission improvements, such testing was done under less stringent, pre-ADF engine testing requirements, using a reference fuel that had 18.7 vol% aromatics, 1.5 wt% polycyclics and a cetane number of 55.8. These reference fuel properties, while meeting the requirements of the Designated Equivalents Limits Diesel, do not meet the ADF's specified reference fuel requirements. Under these fuel conditions, NOx was reduced with RHD which should not come as a surprise given the favorable fuel physical properties relative to emissions testing. CARB's 2011 RHD emissions' testing was **not** conducted pursuant to the required ADF standards and testing protocols. Additionally, the RHD CARB used for testing was from a sole source.

> **Question 3.:**[*sic*] **Will CARB now be considering the Karavalikis[1] study and how will such findings be impacting CARB's new view in the context of the proposed ADF Formulation for public use?**

[1] Emissions and Fuel Economy Evaluation from Two Current Technology Heavy Duty Trucks Operated on HVO and FAME Blends, "SAE Int. J. Fuels Lubr. 9(1):2016, https://doi.org/10.4271/2016-01-0876.

(OP_CAF2_2-5)

Agency Response: Staff previously reviewed the Karavalakis study cited by the commenter during the rulemaking process for the 2018 amendments to the LCFS and ADF regulations. As noted in Response SF14-1 in CARB's Responses to Comments on the Draft Environmental Analysis for the 2018 Amendments to the LCFS and ADF Regulations, staff did not consider this study as part of its quantitative emissions analysis because it did not satisfy staff's study selection criteria, as outlined in the 2015 ADF staff report.[10] The Karavalakis study was performed using a chassis dynamometer. Staff's analysis of emissions impacts associated with biodiesel and renewable diesel only included studies performed using an engine dynamometer because engine dynamometers are computer-controlled, and thus able to obtain a more accurate representation of true fuel-to-fuel differences by eliminating variability due to manual operation. Consistent with staff's previous finding, the Karavalakis study was not included in the quantitative analysis of NOx emissions for the approved ADF formulation because it did not meet the study selection criteria. However, the Karavalakis study includes emissions testing of renewable diesel blends in new technology diesel engines (NTDE); such testing was not conducted as part of the studies staff relied on in staff's quantitative evaluation of NOx emissions for the approved formulations.[11,12] Therefore, although the Karavalakis study did not meet CARB's study selection criteria for inclusion in the quantitative NOx emissions analysis supporting the approved ADF formulation, the results of, this study suggest that continuing study, currently underway directed by CARB staff, of the NOx emissions effects of renewable and biodiesel use in NTDEs is warranted.

As noted in response to comment OP_CAF2_2-2, CARB is justifying the two approved ADF formulations and their associated NOx equivalency function based on the combination of prior CARB testing, CARB certification of fuel producers' renewable diesel-based ADF formulations, and staff's analysis of potential NOx emissions associated with the approved formulations described in the 15-day notice. The results of CARB's prior testing, which was conducted prior to adoption of the ADF regulation, are generally consistent with the

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[10] See "Proposed Regulation on the Commercialization of Alternative Diesel Fuels – Staff Report: Initial Statement of Reasons." CARB. January 2 (2015). Available at: https://www.arb.ca.gov/regact/2015/adf2015/adf15isor.pdf.

[11] See "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels, Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.142177842.1277515527.1593467990-211680084.1591108534.

[12] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels - Appendix B, Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions." CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15dayattb.pdf.

results of the fuel producer's certification testing of renewable diesel-based ADF formulations that demonstrated NOx equivalence.

Comment: Question 4.:[*sic*] **Will CARB be conducting more rigorous ADF type testing on any newly proposed ADF formulation such that it meets current and/or proposed ADF testing requirements? If not, CARB is clearly demonstrating bias and should provide an explanation as to why?** (OP_CAF2_2-6)

Agency Response: CARB is not planning to conduct further ADF type testing on any newly proposed approved ADF formulation. Please see response to comment OP_CAF2_2-2 above for CARB's recital of bases for inclusion of the approved ADF formulations on the evidence in the rulemaking record.

Comment: Question 5: Like with biodiesels, will CARB be investigating RHD's compositional differences and their impact on emissions prior to implementing an ADF Public Formulation? (OP_CAF2_2-7)

Agency Response: No. Please see responses to comments OP_CAF2_2-4 and OP_CAF2_2-6 above.

C-2. *Renewable Diesel/Biodiesel Ratio*

Comment:

(A) Revise "Approved ADF Formulations" to "Blends consisting ~~solely~~ of renewable hydrocarbon diesel (RHD) ~~at not less than 75 percent by volume, and~~ biodiesel (BD) with 2.75 parts RHD to 1 part BD, on a volume basis, with the remainder comprising CARB diesel, ~~and CARB diesel, where the total biodiesel content of the blend does not exceed 20 percent by volume.~~or blends with a lower RHD to BD ratio determined by the Executive Officer as producing NOx emissions equivalent to CARB diesel. Compliance with the 2.75 to 1 ratio or alternative ratio approved by the Executive Officer shall be determined through LCFS data and/or monthly delivery receipts for stations selling biodiesel blends greater than B10.

(B) Direct staff to work with NBB, CABA and other interested stakeholders to review current emissions testing data in support of a RHD to BD ratio alternative ratio(s) shown to achieve NOx neutrality relative to CARB diesel; (B_CABA1_B2-4)

Comment: When calculating blends of renewable diesel and biodiesel, staff's conservative math results in a blend of 2.75 to 1. This calculates to a blend ratio of R55, B20, P25, which means 55 percent renewable diesel, 20 percent biodiesel, and

25 percent petroleum diesel. But staff then lists R75, B20, P5 to be quote/unquote conservative. (T_CABA2_T4-3)

Comment: In calculating blends of renewable diesel (RD) and biodiesel, staff's conservative math results in a blend of 2.75 to 1. This calculates to a blend ratio of 55% RD, 20% biodiesel, and 25% petroleum diesel (R55/B20/P25). But staff then lists R75/B20/P5 to be "conservative". This is simply not justified by CARB's own science. (B_EBR1_B3-2)

Comment: While we believe there are a number of issues with this proposal, our primary concern focuses on the math and formulas CARB staff use to arrive at acceptable NOx mitigated biofuel. The 2.75 to 1 ratio staff cited in the report is not reflected in its language on R75- B20 blends. CARB's own science, nearly 10 years old now, presented a range for NOx mitigation. In that data, 2.75 to 1 was the most conservative value in testing. This proposal goes well beyond that and simply is not supported by the numbers. (B_REG1_B4-2)

Comment: We believe that the math used to calculate RDBD blends is wrong. (T_REG2_T2-2)

Comment: We do not have the buying power to buy Renewable Diesel and blend it at a high ratio with every gallon of biodiesel we produce. There are only a handful of RD suppliers, none of which are in California. The largest RD supplier in the world in Singapore, expressly forbids biodiesel to be blended with its RD.

…

Even if we were able to obtain RD to blend in to our fuel, logistically, it would be impossible at every location where biodiesel is currently being used. There simply is not enough RD available, and the state lacks the infrastructure at this point for it to be widely distributed. (B_NL1_B6-2)

Comment:

(1) The Proposed Compliant Formulation Requires an Unnecessarily High Blend of Renewable Diesel That Is Not Mandated by CARB's Own Research to Achieve NOx Neutrality.

The amendments propose a formulation that would be deemed to comply with the regulatory requirements without further testing, as follows:

> *Blends consisting solely of renewable hydrocarbon diesel at not less than 75 percent by volume, biodiesel, and CARB diesel, where the total biodiesel content of the blend does not exceed 20 percent by volume.* [Proposed Regulation: Appendix A, section (a)(1)(B)1., emphasis added.]

The NBB supports the concept of a renewable diesel to biodiesel ratio implied in the above provision. However, there are several issues with the particular language as proposed:

(A) **The percentages in the proposed compliant formulation are mathematically incorrect.** This language is based on CARB's 2011 biodiesel characterization study[7], from which CARB staff concluded that a blend containing renewable diesel and biodiesel in a 2.75 to 1 ratio, respectively, would be NOx neutral.[8] From a cursory review, one can immediately see that the percentages specified in the above language are plainly wrong. Such a blend containing 75% renewable diesel and 20% biodiesel would yield a RD to BD ratio of 3.75 to 1 (75/20 = 3.75), not 2.75 to 1. This is not a trivial error; it results in a forced demand for renewable diesel that the market cannot meet. For example, if there were 200 million gallons of biodiesel sold in California, 550 million gallons of renewable diesel would be needed to meet the 2.75 to 1 ratio, and 750 million gallons of RD for a 3.75 to 1 ratio. For context, that 200-million-gallon difference represents a 52% increase in the volume of renewable diesel that was supplied to California in all of 2018[9].

[7] Durbin, Thomas et al., Biodiesel Characterization and NOx Mitigation Study, https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20111013_carb%20final%20biodiesel%20report.pdf, accessed April 1, 2020.
[8] ADF Initial Statement of Reasons, Jan. 7, 2020, p. 5 ("Staff has found that ratios of at least 2.75 to 1 of renewable diesel to biodiesel are sufficient to fully mitigate NOx emissions from biodiesel"), https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.62993775.1979421435.1586200160-1675909722.1574251947, accessed April 1, 2020.
[9] LCFS Dashboard, Fig. 2, https://ww3.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm, accessed April 1, 2020.

(B) **The 2.75 to 1 ratio reflects an inappropriate objective to move the ADF regulation beyond achieving NOx neutrality.** The ADF regulation was developed in response to CEQA procedural issues revolving around NOx that were raised in the *POET* lawsuits[10]. The purpose of the ADF regulation has always been to maintain NOx neutrality of diesel substitutes relative to CARB diesel[11], and the amendments should aim for maintaining that NOx neutrality. Indeed, the amendments the Board is now considering were fast-tracked[12] to address a very narrow issue involving biodiesel additives[13], and the purpose for those changes was expressly stated as maintaining NOx neutrality[14].

[10] POET, LLC v. State Air Resources Board (2017), 12 Cal.App.5th 152, and related cases.
[11] ADF Initial Statement of Reasons, Jan. 2015, Executive Summary at 11

("The proposed regulation consists of two major parts: 1) A three stage process for ADFs…including, if necessary, a determination of mitigation measures to ensure no degradation in air quality…"). [Emphasis added.]

[12] Note that CARB staff held the only workshop for discussing the proposed changes in December 2019, just four months ago, with the formal rulemaking being initiated in January 2020. This timeframe is more akin to an emergency rulemaking to address an immediate issue, not a typical 12-24-month, deliberative rulemaking intended to enact a fundamental restructuring of an existing regulation.

[13] See CARB Product Alert: Fuel Additives, Oct. 31, 2019, https://ww2.arb.ca.gov/sites/default/files/2019-10/ADF_Product_Alert_10-31-19.pdf, accessed Feb. 21, 2020.

[14] ADF Initial Statement of Reasons, Jan. 2020, op cit. at ES-3 ("The objective of the proposed amendments is to ensure that those additives or formulations that pass emissions testing are effective in mitigating potential NOx emissions from biodiesel use"). [Emphasis added.]

In discussions with CARB staff and from the proposed compliant formulation, it has become apparent that at least one major objective underpinning the proposed amendments is to achieve NOx reductions beyond mere mitigation and neutrality. This is clearly shown by CARB staff's advocacy of an R75/B20 blend as a complying formulation (75% renewable diesel, 20% biodiesel), which by CARB's own research goes far beyond achieving NOx neutrality.[15] While achieving further NOx reductions is a laudable goal, the ADF regulation is not the appropriate mechanism for achieving that goal since further NOx reductions was never discussed during this rulemaking. Indeed, CARB staff have explicitly discussed further NOx reductions as the goal of the upcoming Low Emission Diesel (LED) rulemaking under CARB's 2020 Mobile Source Strategy, which CARB staff has only recently initiated and is nowhere close to completion.[16]

[15] Durbin op cit. at Table ES-12.

[16] CARB staff presentation, October 18, 2019, slides 23-24 (https://ww2.arb.ca.gov/sites/default/files/2019-10/CA_Fuels_Update_Presentation_Handout_10-18-19.pdf, accessed April 1, 2020).

This issue is neither trivial nor a case of semantics; the amendments seek a fundamental restructuring of the ADF regulation from a NOx neutrality measure into a NOx reduction strategy, which raises significant procedural issues that expose the rulemaking to potential legal challenges.

(C) **The 2.75 to 1 ratio itself is excessively high and not supported by CARB's own data as necessary for achieving NOx neutrality.** Studies conducted

since the 2011 CARB study indicate the appropriate RD to BD ratio is certainly lower than 2.75 to 1 and probably as low as 1 to 1. As discussed further below, even CARB's own data shows that a 1 to 1 ratio can achieve NOx neutrality. Further, the NBB is aware of emission studies that show full NOx mitigation at a 1 to 1 renewable diesel to biodiesel blend ratio.

The NBB believes the disparity between CARB's 2011 study results and these current studies can be attributed to the properties of the candidate fuels used in the 2011 study. A review of the 2011 report shows that the cetane numbers of both the biodiesel and renewable diesel tested were significantly lower than the BD and RD that are representative of today's California market. As a reminder, cetane number[18] is the biggest contributor to a blend's NOx emissions, with higher cetane numbers resulting in lower NOx emissions. This disparity in cetane numbers would explain why CARB was able to achieve NOx neutrality in the 2011 study with a 1 to 1 ratio RD to BD blend using a cetane enhancer (DTBP); the higher cetane numbers in today's biodiesel and renewable diesel would serve the same purpose in neutralizing NOx as the cetane enhancer used in the 2011 study without the need to go beyond a 1 to 1 ratio.

[18] Cetane is a measure of the combustion quality of a fuel used in a compression ignition engine. As such, it serves a similar role for diesel as octane rating does for gasoline.

We would be happy to work with our member company and CARB staff to review the data from the current study so that a more scientifically-justified RD to BD ratio can be reflected in the amendments through a 15-day change.

(D) **The ratio of RD to BD <u>in the biomass portion of the fuel</u> is what determines NOx neutrality, not the total amount of RD and BD in a gallon of fuel.** The proposed language implies that, in a gallon of ADF compliant fuel, virtually the entire gallon would need to consist of mostly renewable diesel (at least 75%), some limited amount of biodiesel (up to 20%), and a couple percent of CARB diesel. However, this language misinterprets CARB's own study. According to its own 2011 biodiesel characterization study, CARB found that NOx neutrality was achieved when CARB diesel was blended <u>with a portion</u> of biomass-based diesel containing specific ratios of renewable diesel and biodiesel, ranging from 1 to 1 to 2.75 to 1 (renewable diesel to biodiesel, respectively). To illustrate, a blend containing 80% CARB diesel, 10% renewable diesel, and 10% biodiesel, with 0.25% DTBP (a well-established cetane enhancer) was found to be NOx neutral. That blend contained RD and BD in a 1 to 1 ratio <u>in the biomass portion</u>. Another blend tested -- containing 25% CARB diesel, 55% renewable diesel, and 20 percent biodiesel -- was also found to be NOx neutral (indeed, it was slightly NOx reducing relative to CARB diesel). That

blend contained RD and BD in a 2.75 to 1 ratio, again in the biomass portion.

These two blends show that it was not required for the entire volume of fuel be comprised solely of renewable diesel and biodiesel (with a small amount of petroleum diesel allowed) to achieve NOx neutrality, as the proposed language seems to suggest. Instead, CARB's research showed that a NOx neutral RD to BD ratio applies to the biomass portion of the fuel blend, not the total amount of renewable diesel and biodiesel in a gallon of fuel.

Recommendations

We recommend 15-day changes to the amendments and related actions as follows (see also Attachment II):

(A) Revise "Approved ADF Formulations" to "Blends consisting ~~solely~~ of renewable hydrocarbon diesel (RHD) ~~at not less than 75 percent by volume,~~ and biodiesel (BD) with 2.75 parts RHD to 1 part BD, on a volume basis, with the remainder comprising CARB diesel, ~~and CARB diesel, where the total biodiesel~~ content of the blend does not exceed 20 ~~percent by~~ volume.or blends with a lower RHD to BD ratio determined by the Executive Officer as producing NOx emissions equivalent to CARB diesel. Compliance with the 2.75 to 1 ratio or alternative ratio approved by the Executive Officer shall be determined through LCFS data and/or monthly delivery receipts for stations selling biodiesel blends greater than B10.

(B) Direct staff to work with NBB and other interested stakeholders to review current emissions testing data in support of a RHD to BD ratio alternative ratio(s) shown to achieve NOx neutrality relative to CARB diesel; (B_NBB1_B7-5)

Comment: Needlessly High Blend of Renewable Diesel That Exceeds What's Required for NOx Neutrality

Based on CARB's previous advocacy of a RD75/B20 blend and their acknowledgement that this goes beyond NOX neutrality vs CARB Diesel, the ratio for RD/biodiesel blend should be at most 2.75 to 1. However, if CARB and the Board were to focus on the original ADF goal of simply ensuring NOX neutrality vis-a-vis CARB Diesel, the ratio should be more like 1:1. (B_CRE2_B8-3)

Comment:

2) Limited Availability of RD

The current ratio proposed of 3.75 to 1 is too high and should be lowered to a scientificallyvjustifiable [*sic*] value. As RD availability is limited, this ratio will directly constrain the amount of biodiesel and thus should not be set artificially high. (B_IWP1_B1-4)

Comment: Finally, as others have mentioned, the ratios that CARB put together for renewable diesel and biodiesel blends are not reflective of their own data, which is in the regulatory report. It far exceeds that, therefore, limiting the amount of biodiesel on the market without a promise of increased renewable diesel. (T_NBB2_T5-3)

Agency Response: Although staff disagrees with objections as to the analysis and determination supporting the proposed R75 B20 approved ADF formulation, as described below, staff did propose a second ADF formulation as a 15-day modification, supported by further analysis included in the rulemaking record, to follow up on general suggestions that further investigation of the issue could be warranted.

Commenters have incorrectly conflated the results of the CARB-commissioned biodiesel characterization study,[13] which demonstrated that an R55 B20 blend (which equates to a ratio of 2.75 gallons renewable diesel to one gallon biodiesel) resulted in a small NOx reduction compared to conventional diesel on a per-gallon basis with the blend ratio needed to ensure overall NOx equivalence for biodiesel and renewable diesel for the ADF program.

As described in the staff report for the 2015 ADF regulation[14] and Attachment B to the 15-day notice for this rulemaking,[15] the ADF regulation NOx mitigation framework relies on NOx emissions reductions from the use of renewable diesel to offset NOx emissions increases from biodiesel blends below the NOx control level (usually B5). If currently-certified additives and formulations are no longer available to mitigate biodiesel NOx emissions above the NOx control level when the proposed amendments become effective, biodiesel producers and

[13] See "CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California - "Biodiesel Characterization and NOx Mitigation Study."" Durbin, et al. October (2011). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20111013_carb%20final%20biodiesel%20report.pdf.

[14] See "Proposed Regulation on the Commercialization of Alternative Diesel Fuels – Staff Report: Initial Statement of Reasons." CARB. January 2 (2015). Available at: https://www.arb.ca.gov/regact/2015/adf2015/adf15isor.pdf.

[15] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels." CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf.

blenders will need to use other methods of compliance, such as use of an approved ADF formulation, to ensure that biodiesel blends above the NOx control level are mitigated to the level of conventional diesel. Substantial use of renewable diesel in approved ADF formulations to mitigate NOx emissions from use of biodiesel blends above the NOx control level could reduce the amount of renewable diesel available to offset NOx emissions from biodiesel blends below the NOx control level. Therefore, the renewable diesel blend content of an approved or certified ADF formulation must be high enough to mitigate biodiesel NOx above the control level on a per-gallon basis and ensure NOx emissions increases from biodiesel blends below the NOx control level are fully offset. This was a primary consideration in CARB's approval of the certification of Renewable Energy Group's (REG) first two renewable diesel-based ADF formulations (Executive Orders G-714-ADF02 and G-714-ADF06),[16] including a certified blend of R75 B20. Staff's NOx analysis for the staff report, which considered the results of the CARB-commissioned biodiesel characterization study[17] and staff's analysis related to these two Executive Orders, formed the basis for the proposed R75 B20 approved formulation.

Consistent with Board direction to address "the blending issue", and based on discussions with stakeholders and additional staff analysis of NOx emissions associated with approved ADF formulations,[18] staff proposed, as a 15-day modification to the approved proposal, adding an R55 B20 approved ADF formulation as an additional compliance option for persons subject to in-use requirements for biodiesel use above the NOx control level (usually B5). This proposed modification also addresses stakeholder comments that the R75 B20 formulation requires more renewable diesel than is needed to ensure NOx equivalence, as well as stakeholder comments that the R75 B20 formulation could artificially restrict the use of biodiesel in California due to insufficient renewable diesel availability. The amended ADF regulation also allows stakeholders to certify ADF formulations that contain renewable diesel at blend contents below the blend contents of approved formulations, if certification

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[16] See "Executive Order G-714-ADF02." CARB. January 18 (2018) . Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20180118_reg_eo_adf02.pdf?_ga=2.228549661.1680858013.1588706403-1042658205.1574400241 and "Executive Order G-714-ADF06." CARB. 2018. June 1 (2018). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20180612_reg_eo_adf06.pdf?_ga=2.44342444.969776230.1588719562-347889477.1588719562.

[17] See "CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California - "Biodiesel Characterization and NOx Mitigation Study."" Durbin, et al. October (2011). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20111013_carb%20final%20biodiesel%20report.pdf.

[18] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels - Attachment B, Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions. CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15dayattb.pdf.

testing can demonstrate a two percent NOx reduction relative to conventional diesel.

Notwithstanding the National Biodiesel Board (NBB) comments' apparent misunderstanding of interactions with CARB staff, the proposed amendments do not aim to achieve NOx reductions beyond those necessary to mitigate biodiesel NOx to neutrality with conventional diesel. Rather, the proposed amendments ensure the efficacy of additives or ADF formulations certified to mitigate potential NOx emissions increases from the use of biodiesel, as indicated in the staff report and the 15-day notice.[19,20]

NBB has also overstated the volumes of biodiesel that will require NOx mitigation and the potential volumes of renewable diesel needed for biodiesel NOx mitigation. Based on ADF reporting data for 2018[21] (i.e., the first year when biodiesel in-use requirements were in effect), approximately 67 percent of biodiesel use was in blends below the NOx control level (usually B5). Because use of biodiesel blends below the NOx control measure are not subject to in-use requirements, only one-third of the 200 million gallons of biodiesel sold in California (i.e., approximately 67 million gallons) in NBB's example would require biodiesel NOx mitigation. Assuming that the R55 B20 approved ADF formulation is the only mitigation method utilized, approximately 184 million gallons of renewable diesel would be required (as opposed to 550 million gallons, as estimated by the commenter) to mitigate biodiesel NOx emissions above the NOx control level. This estimate represents the maximum volume of renewable diesel needed for universal use of the R55 B20 approved formulation, and does not account for other compliance approaches that may be used, such as additional blending of biodiesel to levels below the NOx control level, use of station and fleet exemptions, use of DTBP as an approved additive, or use of certified ADF additives and formulations that may be approved under the amended certification requirements. Use of any of these other compliance approaches would further reduce the amount of renewable diesel required for use in the R55 B20 approved ADF formulation.

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[19] See "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels, Staff Report: Initial Statement of Reasons." January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.98284639.1915497612.1605028209-211680084.1591108534.

[20] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels. CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf.

[21] See "Draft Alternative Diesel Fuels Regulation Reporting Summary – 2018." CARB. October 23 (2019). Available at: https://ww2.arb.ca.gov/sites/default/files/2019-10/ADF_Reporting_Summary_2018.pdf.

In response to New Leaf Biofuel's comment that there are no renewable diesel suppliers in California, staff notes that World Energy operates a renewable diesel production facility in Paramount, California and that this facility is currently undergoing an expansion that will substantially increase its renewable diesel production.[22] Please also refer to response C-3 in this chapter regarding renewable diesel availability and response F-2 in this chapter regarding potential constraints on biodiesel use.

C-3. *Fuel Supply and Availability*

Comment: Separately, there does not appear to have been any market-impact analysis from the allowance of an ADF Public Formulation. As CARB is aware, there are a limited number of parties that are "producers" of both RHD, the availability of which is often a contractually managed process, and biodiesel. Between the overly burdensome financial impact of the changes to the ADF's NOx mitigant testing requirements that will likely foreclose that pathway, and the cost and handling factors that render the DTBP pathway financially impractical, CARB is on the one hand handicapping NOx mitigants while enabling an ADF Public Formulation. CARB is again attempting to "pick winners".

> **Question 5.:**[*sic*] **Has CARB spoken with RHD "producers" about availability constraints and their distribution processes including 3rd party agreements, exclusivities (territory based or otherwise), etc.?**
>
> **Question 6.:**[*sic*] **How will CARB be ensuring that the market advantage won't be had by some to the detriment of others?**
>
> **Question 7.:**[*sic*] **CARB made any market-impact analysis, and if so, how does CARB believe that what they are proposing will favorably impact wholesale and consumer diesel pricing or for that matter the LCFS credit market under the proposed scenario?** (OP_CAF2_2-8)

Comment: But more importantly, as someone with 20 years of experience in the biofuel market, I can tell you that there is very limited availability of RD in the entire world and there are many emerging carbon-regulated markets that are vying for the same gallons as California. As a result, this requirement will effectively limit blending of biodiesel due to lack of RD. (B_EBR1_B3-3)

Comment: As a manufacturer of renewable diesel (RD), we can attest that this proposal in no way grows biomass-based diesel supply in the California market. Since the pool of RD is not growing, using the R75-B20 formula in effect *limits* the amount of biodiesel available for blending. (B_REG1_B4-3)

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[22] See "World Energy invests $350M to expand Paramount biofuel production." Biomass Magazine. October 24 (2018). Available at: http://biomassmagazine.com/articles/15699/world-energy-invests-350m-to-expand-paramount-biofuel-production. Accessed November 10, 2020.

Comment: I think the proposal reflects a lack of understanding of the marketplace. While the claim was costs would be negligible, there's a very good chance that blends of BD and RD will be shifted to places like Oregon, BC, and Europe that have similar systems in place. (T_REG2_T2-6)

Comment: [M]ore importantly, as someone with 20 years of experience in the biofuel market, I can tell you that there is very limited availability of renewable diesel in the entire world. And there are some -- there are many emerging carbon regulated markets that are vying for the same gallons as California.

So this requirement will effectively limit blending of biodiesel due to the lack of renewable diesel. (T_CABA2_T4-4)

Comment: The proposed amendments suggest a 3.75 to 1 renewable diesel to biodiesel formulation. That will end up constraining the amount of biodiesel sold in this state, as there is currently not enough renewable diesel in the market to support this.

This results in a -- less biodiesel being sold in this California and goes against CARB's own goals of displacing petroleum and improving our air quality. (T_CABA3_T6-3)

Comment: Simply put, biodiesel producers like us are struggling to keep our plants open. As oil and fuel prices have plunged, we have simultaneously seen the supply of low carbon feedstocks rapidly contract. The prices of these raw materials have increased and fuel demand has also contracted. These factors have caused many biodiesel plants, including mine, to reduce production significantly, which means California will see a reduction in the air quality and environmental benefits delivered by biodiesel, such as reductions in diesel particulate matter, carbon monoxide, PAH, and greenhouse gas emissions.

If the proposed ADF changes are implemented as is, it will create a regulatory barrier to the consumption of biodiesel in California. This in turn reduces the market for biodiesel in California and exacerbates the ongoing demand destruction effects that we expect to see continue for the next 20 to -- 12 to 24 months, because of the COVID-19 crisis. (T_CRE3_T9-3)

Comment: Even if we were able to obtain RD to blend into our fuel, logistically, it would be impossible. There is not enough RD available and the State lacks infrastructure. (T_NL2_T10-4)

Comment: Furthermore, keep in mind that RD is a supply constrained fuel. The California market must compete with European and Canadian markets for RD, and many of our truck stop and fuel wholesaler customers can't currently buy RD due to lack of supply. (B_CRE2_B8-4)

Agency Response: The commenters expressed concerns regarding availability of renewable diesel and its availability for use in ADF formulations. Staff conducted an analysis of renewable diesel and biodiesel volumes[23,24] including an evaluation of future volumes. The recent trends in LCFS reporting data indicate that NOx neutrality of B20 blends could be achieved using current and likely projected volumes of renewable diesel and biodiesel. Based on LCFS reporting data, 618 million gallons of renewable diesel and 212 million gallons of biodiesel volumes were reported in 2019, respectively. In fact, in 2019, the calculated ratio of renewable and biodiesel volume was 2.9:1, which surpasses the 2.75:1 renewable diesel/biodiesel ratio in the proposed ADF regulation amendments (R55 B20). Based on the scenarios discussed in the Attachment B of the 15-day notice coupled with continual announcements by renewable diesel producers and refiners to expand renewable diesel production within and outside of California, staff expects that there will be enough renewable diesel available to for use in ADF formulations.

C-4. *Aggregation of Renewable Diesel/Biodiesel Ratio*

Comment: Avoiding these costly and unworkable scenarios is precisely why the aggregation approach to enforcing the RD to BD blend ratio is correct. (B_IWP1_B1-3)

Comment:

(C) Direct staff to work with NBB, CABA and other interested stakeholders to develop a protocol for implementing the RHD to BD ratio or alternative ratio on a system-wide, aggregate basis; (B_CABA1_B2-5)

Comment: So we are left with only a couple other RD producers that wont [*sic*] even take my phone call. If you insist on making sure that there is a certain amount of RD blended in to the fuel supply, GREAT. We support that. But it must be on an aggregate level. It cannot be in each physical gallon. And as others have stated here, the ratio in this proposed regulation is incorrect. (B_NL1_B6-3)

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[23] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels - Attachment B, Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions. CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15dayattb.pdf.

[24] See "Staff Analysis of ADF Public Formulation Blend Level." CARB. June 4 (2020). Available at: https://ww2.arb.ca.gov/sites/default/files/2020-06/Staff_Analysis_ADF_Public_Formulation_Blend_Level.xlsx.

Comment:

(2) NBB Proposes an Alternative Method and Metric for Determining When the Appropriate Ratio of Renewable Diesel to Biodiesel Has Been Reached

As noted, NBB supports the concept of a simplified metric like a renewable diesel to biodiesel ratio. However, we believe the concept as proposed in the amendments is somewhat flawed and would be very difficult, if not impossible, to implement and enforce at the pump. As NBB understands it, the RD to BD ratio is intended to be applied to individual ADF formulations in each dispensed gallon consisting of renewable diesel and biodiesel blends. The intent is to apply this ratio to each gallon of biodiesel blend above 5 percent[19] so that each gallon of a blended fuel that is sent into a vehicle's engine contains the requisite ratio of RD to BD.

The problem with this approach stems from the fact that retail stations commingle all fuel deliveries they receive from distributors into their underground storage tanks. This means that, even if a station starts with the appropriate RD to BD ratio in its underground storage tank, commingling of deliveries of diesel and diesel blends with varying RD and BD contents will eventually result in a mixture that may no longer meet this particular ratio. Therefore, it is unlikely and impractical for the ratio to be enforced through sampling of fuel at the pump.

As an alternative to this scenario, NBB proposes to work with CARB staff to develop a similar but system-wide ratio metric based on aggregate RD and BD volumes that are already reported to CARB through its existing LCFS-CBTS online reporting system. The 2018 LCFS data, the most recent year with complete data, shows a system-wide RD to BD ratio that is already over 2.1 to 1. This ratio has been increasing steadily in recent years due to growing demand for biomass-based diesel. This means that, depending on the ratio that is adopted, the NOx mitigation requirement for B20 blends that is due to sunset in 2023 may have already been reached or will be reached before 2023[20], if current sales trends of RD and BD volume continue into 2019, 2020 and beyond.

CARB's own staff report for this rulemaking acknowledges that renewable diesel and biodiesel can be shown, both per gallon and on a regional basis, to provide NOx equivalency using a system-wide, aggregated approach:

> "Based on prior CARB testing and stakeholder certifications of renewable diesel, staff has found that renewable diesel is able to mitigate potential NOx emissions increases from biodiesel, relative to CARB Diesel, *when used in the same blend*. Renewable diesel is also able to offset NOx emissions increases from biodiesel *when used in the same geographical region*. Staff has found that ratios of at least 2.75 to 1 of renewable diesel to biodiesel are sufficient to fully mitigate NOx emissions from biodiesel…"[21] [Emphasis added, internal citations omitted.]

Based on this, NBB requests the Board to direct CARB staff to work with us during the first half of 2020 (when complete 2019 and partial 2020 LCFS data are reported) to develop a protocol for determining when the appropriate RD to BD ratio for reaching NOx neutrality (as discussed above) has been or is projected to be reached. We believe an appropriate protocol could be developed that uses a combination of LCFS reporting data, product transfer document records, and limited station sampling to corroborate the RD to BD ratio.

[19] Diesel containing no more than 5 percent biodiesel is treated the same as conventional petroleum diesel for all purposes, thereby requiring no NOx mitigation measures.
[20] The current regulation would sunset the NOx mitigation requirement for B20 in 2023 for on-road diesel, which is when at least 90% of the vehicle miles traveled by on-road HDVs are projected to be made by post-2010 new technology diesel engines employing selective catalytic reduction and diesel particulate filters to control NOx and diesel PM.
[21] ADF Initial Statement of Reasons, Jan. 2020, op cit. at 5.

…

(C) Direct staff to work with NBB and other interested stakeholders to develop a protocol for implementing the RHD to BD ratio or alternative ratio on a system-wide, aggregate basis[.] (B_NBB1_B7-9)

Comment: If you insist on making sure that there is a certain of RD blended into the fuel supply, great. We support that. The CABA supports that. But in the current market, it must be on an aggregate level. It cannot be on every physical gallon. And as others have stated here, the ratio in this proposed regulation is incorrect. (T_NL2_T10-3)

Agency Response: Staff disagrees with the comments that an "aggregate" or "system-wide" approach to determining the adequacy of NOx mitigation should have been considered during the development of these amendments. The intent of these amendments is to strengthen the certification process such that the additives or formulations that receive CARB certification are effective in mitigating potential NOx emissions from biodiesel use. The suggested "aggregate" or "system-wide" basis for determining the adequacy of NOx mitigation represents an entirely new regulatory approach beyond the scope or goals of the proposed amendments.

For more information on the consideration of this "aggregate" or "statewide" approach in the initial ADF rulemaking please refer to the "Outline of the

Proposed Alternative Diesel Fuels Regulations" released on June 13, 2013,[25] and the "Public Workshop on the Commercialization of New Alternative Diesel Fuels, held on February 13, 2014.[26]

D. Certification Testing

D-1. *Two Laboratories*

Comment:

(D) Delete or suspend the 2-lab certification procedure and related requirements, as discussed in Attachment I, pending completion of the suggested round-robin testing. Direct staff to work with NBB, CABA, qualified emissions testing labs, and other interested stakeholders to develop and conduct the suggested round-robin testing[.]

...

Attachment I
NBB and CABA Proposed Changes to Resolution 20-02

…

BE IT FURTHER RESOLVED that the Board hereby directs the Executive Officer to convene a working group with stakeholders within 30 days of this hearing to develop recommendations for addressing the interlaboratory variability concerns raised by stakeholders and their suggested round-robin testing program. The Executive Officer is further directed to report back to the Board on the recommendations by the working group within 30 days of the completion of the working group's efforts. (B_CABA1_B2-6)

Comment:

(3) NBB Remains Highly Concerned with the Proposed 2-Lab Certification Process and Proposes Instead A Round Robin Test Program in Accordance with Standard Best Practices to Address CARB Concerns.

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[25] See "Outline of the Proposed Alternative Diesel Fuels Regulation. Preliminary Draft Regulation Order." CARB. June 13 (2013). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20130613adfregoutline.pdf?_ga=2.43363109.1822795048.1600729132-1183844988.1589931069.

[26] See "Public Workshop on the Commercialization of New Alternative Diesel Fuels." CARB. February 13 (2014). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/021314_publicmeetingpres.pdf?_ga=2.55021483.1822795048.1600729132-1183844988.1589931069.

We submitted comments with regard to the proposed two-laboratory certification process when it was first proposed at CARB's workshop on December 13, 2019, and those comments are incorporated herein by reference in the Attachment. We are reiterating those comments since the proposed amendments do not address the substantive comments NBB provided. In summary, the proposed two-lab certification process for biodiesel formulations and biodiesel additives is unprecedented[22] and unfair since it applies only to biodiesel and biodiesel formulations[23], while giving a pass to petroleum diesel, gasoline and other fuels. Most importantly, the two-lab certification process is premised on flawed or unsupportable assumptions[24] and are therefore scientifically invalid.

[22] As noted in NBB's comment letter (dated Dec. 20, 2019), a two-lab certification process is unprecedented at CARB or any other regulatory agency.
[23] As noted in NBB's Dec. 2019 comment letter, the proposed two-lab certification scheme would apply only to biodiesel (the only commercially available ADF fuel) and biodiesel additives; it would not be applied to any other fuel, renewable or petroleum based. Indeed, it is not even applied to conventional petroleum diesel formulations subject to existing CARB regulations under title 13. Those petroleum-based diesel formulations generate the high GHG and diesel PM emissions that CARB has been trying to reduce through the LCFS and other programs. In effect, CARB would be subjecting to this onerous requirement the renewable biofuels that are largely responsible for the LCFS' success to date, while giving petroleum-based diesel formulations a free pass when they are claimed to achieve equivalent emissions to reference CARB diesel.
[24] The proposed two-lab certification process appears to stem from a CARB belief that U.C. Riverside's CE-CERT lab, and only the CE-CERT lab, performs the prescribed certification correctly, while world-renowned labs like Southwest Research Institute (SwRI) and West Virginia University (WVU) do not. As a reminder, the latter two research labs have collaborated with CARB on a number of past projects, most recently on uncovering the Volkswagen diesel cheating scandal. Indeed, it is NBB's understanding that one or both of these facilities have performed the certifications for all or nearly all of the existing conventional or alternative conventional diesel formulations CARB has certified with Executive Orders in the past.

To address these concerns, NBB reiterates its request for the two-lab certification requirement[25] to be deleted or suspended until a scientifically valid, robust, and transparent round-robin test program can be conducted with the University of California, Riverside's CE-CERT lab, Southwest Research Institute (SwRI), West Virginia University, and any other qualified labs to identify and quantify any intralaboratory biases that may be occurring while conducting the prescribed protocols. This would allow scientifically-based enhancements of the current test protocol to address the staff concerns without effectively giving the CE-CERT lab a virtual monopoly on biodiesel and ADF certifications. As written, the proposed amendments would be incorporated into the regulation without any validation of the protocols with other labs besides CE-CERT, a scientifically-questionable approach that is inconsistent with CARB's prior best practices for protocol development. The NBB stands ready and

willing to collaborate with CARB and other interested parties to develop and conduct such a round-robin test program.

[25] Proposed amendment to title 13, California Code of Regulations (CCR), section 2293.6(a)(2)(F), see https://ww3.arb.ca.gov/regact/2020/adf2020/isorappa.pdf?_ga=2.144953340.934330685.1582150244- 1675909722.1574251947, Appendix A, p. A-11, accessed Feb. 10, 2020.

…

Similarly, the technical feasibility analysis assumes, without evidence, that biodiesel additives manufacturers and biodiesel producers will be able to make formulations that meet the new certification procedure. The Staff Report provides no evidence that a known NOx-neutral formulation, undergoing the proposed certification at two labs, will get corroborating test results from the two labs. And the proposed amendments are completely silent on how to treat results that differ between the two labs. For these and other reasons, NBB is strongly opposed to the new certification procedures and recommends a transparent round-robin testing program to address and meet the Board's objectives.

…

(D) Delete or suspend the 2-lab certification procedure and related requirements, as discussed in Attachment I, pending completion of the suggested round-robin testing. Direct staff to work with NBB, qualified emissions testing labs, and other interested stakeholders to develop and conduct the suggested round-robin testing[.]

…

Attachment I
NBB Comments on the Proposed 2-Lab Certification Procedure
(Submitted in response to CARB's December 13, 2019 workshop)

…

<u>Substantive concerns: The proposed two-lab certification process is unprecedented, inequitable, and could result in a de facto California-lab veto over the results from other, equally qualified labs.</u>

CARB staff proposes to revise the certification process to require ADF applicants to run duplicate tests through two separate labs. With the added requirement for testing a diesel fuel produced at a California refinery at one of the laboratories, this essentially puts in a requirement that one of the labs be the University of California, Riverside's

(UCR) CE-CERT lab. Obviously, this effectively doubles the certification costs for every applicant, and certification with a single lab already constitutes a substantial cost and barrier to market entry for any applicant. More importantly, this proposal is fundamentally flawed and inequitable for several reasons.

First, to our knowledge, such a two-lab certification requirement is unprecedented at CARB (or any other regulatory agency) and is applied to no other fuel, renewable- or petroleum-based. Indeed, it is not even applied to conventional petroleum diesel formulations subject to existing CARB regulations under title 13, California Code of Regulations (CCR), section 2282 or section 2700. As a reminder, those petroleum-based diesel and alternative diesel formulations generate the high GHG and diesel particulate matter emissions that CARB has been trying to reduce through its LCFS and other programs. In effect, CARB would be subjecting to this onerous requirement the same renewable biofuels that are largely responsible for the LCFS' success to date -- the biofuels which have substantially reduced GHG and diesel PM emissions from the heavy duty sector -- while giving petroleum-based, conventional and alternative diesel formulations a pass when they are claimed to achieve equivalent emissions to the reference fuels.

Second, the proposal is structured to not only essentially require UCR CE-CERT to be one of the two labs, but it also provides that UCR CE-CERT's results would trump the results from any other lab used. This would be true even if an applicant used three labs, with UCR CE-CERT's results overriding corroborating results from the other labs. There seems to be little point in requiring two labs for certification testing; if CARB's intent is to have all testing be done by one lab in the U.S., why not simply state that? Of course, we are not suggesting that all certification be done by UCR CE-CERT, but the proposed amendments would effectively render moot the use of any other lab besides UCR CE-CERT (as well as being a superfluous and substantial expenditure of resources by the applicant).

Third, the two-lab proposed requirement, and the implicit requirement for UCR CE-CERT to be one of the labs with veto power over the results of any other lab, appears to be premised on the assumption that Southwest Research Institute's (SwRI) compliance with the existing test protocols is somehow faulty. This assumption would also apply by extension to similar testing performed by West Virginia University (WVU) or any other qualified lab. As a reminder, it is our understanding that all or nearly all testing submitted by the petroleum refiners under 13 CCR 2282 or 2700 have been performed by SwRI or WVU. If CARB staff is concerned about the validity of the testing performed by those labs, wouldn't that raise questions about the validity of all Executive Orders issued under 13 CCR sections 2282 or 2700? Again, applying this assumption against testing done for biofuels, but not for conventional petroleum diesel formulations, suggests a potential agency bias against the very biofuels that are central to the success of the LCFS program.

Substantive concerns: If CARB's aim is to improve the testing of ADF formulations and additives, quantifying intra- and interlaboratory bias and variability is a much better and more valid way to accomplish that without requiring a two-lab certification process.

Respectfully, we believe the proposed requirement for a two-lab certification misses the point. As noted above, the proposal appears to assume without proof that UCR CE-CERT performs the testing the "correct" way while SwRI and WVU do not. But it is equally valid to assume the reverse: that UCR CE-CERT is incorrectly applying the protocol, and SwRI and WVU have been applying it correctly. Clearly, it is unproductive to make either assumption. The desired approach and outcome, for both CARB and applicants, should be testing to determine intra-laboratory biases, if they exist, and establish an improved certification protocol with better quantified variability so that any single, qualified lab can perform the testing -- the results, if they fall within that variability, should be held as valid.

NBB was just one of the entities that worked with SwRI to conduct the testing on B20 additive formulations for NOx mitigation under the recent ADF certification test procedures put into place for B20 by CARB. The ADF certification procedures were put into place by CARB after a significant amount of public input and internal CARB review in order to support increasing levels of new low carbon fuels coming into California expected as a response to the LCFS' strong market signal. While there may be opportunities for improvement, the existing CARB emissions testing procedures are far in excess of any other regulatory entity in the U.S., and they already represent a significant financial burden and barrier to entry for the new low carbon fuels needed to meet the California LCFS.

While the CARB protocols are the most stringent available, CARB's proposed amendments would further exacerbate the situation by potentially resulting in two different but well-qualified laboratories conducting tests using prescribed procedures and protocols allowed under the regulation and coming up with fairly similar results—but results that are nonetheless different enough to result in one lab showing the fuel package as meeting the NOx equivalency value, and the other failing the same value. This dilemma is not resolved by having one lab's results trump the other's (as discussed above); the scientifically valid practice is instead to identify and quantify intralaboratory biases and interlaboratory variability and reflect that information in the protocol.

When differing results from different laboratories happen in other areas—as it often does when different entities use the same testing methods but different equipment, analysts, and lab facilities—the most common and scientifically valid way to address these discrepancies is to conduct round robin testing using the same exact fuels and the same exact testing procedures, along with careful attention to following the procedures used. In drastic cases, a third-party auditor is used to review and evaluate the testing procedures of each lab before-hand, as well as witness the testing as it is

performed in order to identify discrepancies. This comparison can be used to help determine whether there is an inherent bias from one lab versus another due to a procedure or practice which is either not being followed properly or that is having an unanticipated impact on the test result, or just simply normal variation that is expected to occur from one testing laboratory to another.

Many of the OEMs utilize SwRI because of their many years of testing experience and their expertise in conducting emissions testing. Over the years, OEMs—as well as NBB—have become confident in the emissions values produced at SwRI, which is why SwRI is such a well-respected laboratory for emissions regulatory work. Indeed, according to SwRI many of the previous CARB certifications for existing petroleum-based diesel fuel were run at SwRI. It may very well be that UCR CE-CERT has an inherently high bias on NOx results, and that could be the reason why ALL of the UCR CE-CERT retest results for the B20 formulations were higher than those from SwRI. If these biases do exist, then the proposed changes of running the testing at two different labs against two different fuels could result in the same conflicting results as CARB is currently facing—if UCR CE-CERT is one of the labs chosen. Alternatively, if the bias exists on the SwRI side, then it could very well bring into question most, if not all, of the existing CARB certifications for conventional diesel fuel in addition to the existing B20 additive formulations.

As noted, the proposed changes would serve as an onerous and substantial barrier to NOx mitigated biodiesel formulations entering the California market, a market in which biodiesel has played a substantial role in ensuring the success of the LCFS (along with renewable diesel). Therefore, we recommend that CARB institute round-robin emissions testing between SwRI, WVU, and UCR CE-CERT (and potentially other qualified facilities) to determine if the differences observed are simply lab or other procedural biases. This testing should use the prescribed Series 60 engine with the same exact CARB48-10 reference fuels and additized fuels and use the same exact protocol to determine the extent the differences observed may be due to an inherent bias between the labs or the procedures or due to random variation between the laboratories. The fuels can be sourced and blended at an agreed-upon third party, as is commonly done for ASTM round robins on analytical test procedures. NBB will offer to work with ASTM to assist CARB in locating an acceptable third-party blending laboratory.

Further, a third-party expert emissions auditor (or panel of auditors) should review the QA/QC and testing procedures of each entity (which will mostly likely need to be done under confidentiality) to identify potential discrepancies and observe the testing done at each laboratory. Based on this, an assessment can be made on whether there is an inherent bias between labs or other procedural differences which may have resulted in the existing varying results, or whether the differences observed may have been due to other factors CARB has addressed in the proposal such as chain of custody, additive blending, replicate analytical testing, etc.

It is our hope this data could be used by CARB to identify whether sources of variation or bias due to the laboratory practices and/or engine operation exist, and that changes or modifications to reduce that variation could be put into play so only one laboratory engine test and one reference fuel is needed for B20 additive formulation testing—or other future emissions certification testing under the ADF or other CARB certifications. This will not only help ensure emission testing for CARB is of the highest quality and scientific veracity, it will also substantially lessen the barriers to entry for new low carbon fuels needed to meet the LCFS.

Substantive concerns: Timing of retesting, engine selection and additional CARB fuel for testing

Our initial review has also raised concerns on the overall inadequate amount of time for retesting and the lack of availability of test cells with the proposed changes should they be implemented as-is; the requirement for the testing to be done only with the Cummins ISB engine with which no other fuels have been certified and with which limited data are available; and the requirement for testing with an additional CARB diesel, which is also not required for other fuel formulations.

…

Attachment II
NBB and CABA Proposed Changes to Resolution 20-02

…

BE IT FURTHER RESOLVED that the Board hereby directs the Executive Officer to convene a working group with stakeholders within 30 days of this hearing to develop recommendations for addressing the interlaboratory variability concerns raised by stakeholders and their suggested round-robin testing program. The Executive Officer is further directed to report back to the Board on the recommendations by the working group within 30 days of the completion of the working group's efforts. (B_NBB1_B7-10)

Comment: Issues with the Proposed 2-Lab Testing Protocol and Need for Industry Working Group

As the National Biodiesel Board, the California Advanced Biofuels Alliance (respectively our national and state trade associations), the Engine Manufacturers Association, and additive fuel manufacturers have stated, there are numerous issues with the 2-lab testing protocol that staff is proposing. Personally I find it very strange that all of a sudden CARB staff doesn't trust the test results from Southwest Research Lab that has for several years certified a large number of the CARB Diesel formulation currently on the market or from another lab (West Virginia University) that was instrumental in providing the test data that proved that Volkswagen was cheating on

emissions testing. But leaving all that aside, I hope that at a minimum, the Board will be supportive of having an industry stakeholder working group working in parallel with the rulemaking process to conduct round robin testing between multiple labs including CCERT and see the true degree of variability between them. (B_CRE2_B8-5)

Comment: The two facility testing requirement is unprecedented. It's confusing to us why labs like West Virginia, which were instrumental in the VW testing issue why their data development is somehow how [*sic*] now in question. (T_REG2_T2-3)

Comment: With regard to technical issues, there are two I'd like to mention briefly. The first is that requiring additives and other formulations to go through a two lab certification is unprecedented literally. It's never been done before, including for the 30 plus CARB diesel formulations in the market. If this would resolve scientific or public health questions, we would absolutely support it, but all it does is simply add costs for our members, which ultimately could reduce the amount of clean fuels in the market. Since there do [*sic*] appear to be a lack of confidence in labs, our strong recommendation is to get to the bottom of it.
And the way you do that, the standard practice within the industry and government, is to form a working group to develop a round robin testing protocol to identify and quantify the variability between labs. We believe so strongly that we should have confidence in the labs and that CARB should do round robin testing, we'd even be willing to cost share such a program.

This is not a novel approach. This is something, in fact, that CARB has already engaged in with U.S. EPA and others, on other issues, such as certification testing for diesel engines.

Again, ultimately, we completely agree that everyone should have a high level of confidence in the labs, but round robin testing is the way that you get to the bottom of that and that's what we support. (T_NBB2_T5-2)

Comment: The proposed amendments establish a costly and unprecedented and proven two-lab certification process for all biodiesel formulations and additives. No other fuel has been subjected to this process. (T_CABA3_T6-4)

Comment: We support all CARB's proposed chain of custody and verification processes, but not the two-facility testing approach. (OP_CAF1_1-3)

Comment:

- The certification requirement of duplicate emissions testing at two independent labs is unsubstantiated and should be reconsidered.
    - CARB staff has not provided evidence to support the requirement nor the implicit assumption that labs used to date are unreliable.

- There is no precedence in any other CARB-required fuel testing for a two-lab test requirement.
- If the validity of previous testing is in question, the proper approach is roundrobin testing in which the same fuels, test procedures and method are followed by different laboratories.
- Duplicate testing doubles cost. As a result, barriers to entry are raised for additives that could reduce NOx emissions. This not only increases cost as a result of reduced competition, but also introduces a very real risk of not having any vendors remaining if the few market entrants have production issues or go out of business. (OP_CRE1_5-1)

Comment: Prior to adoption of a final regulation order, ARB should take the following steps:

…

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 base on testing in one laboratory with statistical compliance including a lab-to-lab variability factor. (OP_EMA1_4-9)

Comment:

c. Please explain how testing at two separate labs provides an assurance that in use fuels meets the objectives of enabling ADF certification, improved reproducibility, uniformity, and will ensure that potential NOx emissions from in-use biodiesel is mitigated? (OP_BC1_6-4)

Agency Response: CARB rejects commenters' objections to the two-laboratory independent verification requirement. As indicated in the staff report, CARB staff directed testing of existing biodiesel additive formulations in 2019, and found some formulations to be ineffective or insufficiently effective at mitigating NOx increases. The addition of the independent two-laboratory certification requirement is necessary to reinforce the effectiveness and validity of the ADF certification test program. By ensuring that certification testing results are repeatable on different engines at different Emissions Test Facilities, the requirement provides reasonable independent verification of a demonstration of emissions equivalency.

The results obtained between two laboratories will be compared on a *relative* basis rather than on an absolute basis. Though absolute lab results may vary between laboratories, CARB staff expect comparison between two laboratory results, each with completed and EO-accepted test protocols, will not result in major differences in *relative* results. That is, the candidate fuel emissions are

tested, at least 20 times, with each series of individual tests averaged to obtain a single value to compare with the results of the test reference fuels as determined by the same engine under the same conditions, differing only in fuel composition. For each engine, the candidate fuel results will be compared to average emissions during testing with the Diesel Test Fuel. Because the results will not be compared against absolute results from other engines, there is no need for interlaboratory variation to be assessed and corrected, and therefore, interlaboratory testing such as round-robin testing is not necessary under this provision.

The proposed amendments set a threshold for relative differences between the same test fuels at different laboratories for eligibility in the testing protocol to determine if the engines give statistically similar results, within one percent for NOx and two percent for PM. By setting that threshold the amendments ensure that there will not be large relative differences between the same fuels at different laboratories, and therefore an accurate determination of relative differences in NOx emissions between candidate fuels will be obtained.

Introduction of a second laboratory adds an additional check of each laboratory's internal quality management. Internal quality management (the only type of quality management relied upon with single laboratory testing), may create a false sense of security regarding laboratory accuracy and reproducibility.

Commenters are correct that two-laboratory testing may not allow determination of exactly which variables may result in a lack of interlaboratory reproducibility to the level of specificity achieved in round-robin testing, but external quality assessment provides objective evidence of testing accuracy, which is the primary goal of these amendments.[27]

Regarding stakeholders' comments concerning two-laboratory certification being without precedent: certification methods are developed by CARB along with interested stakeholders, and are specific to each regulation. This is because each air quality regulation is structured differently depending on the air pollutant source and type. Therefore, the means necessary to certify a fuel and verify the resultant emissions differ by regulation and are therefore often unique and without specific precedent. That does not render the proposed two-laboratory certification process invalid or inappropriate in any way. These amendments were carefully and specifically designed to strengthen the certification process for ADF fuels such that NOx emissions due to biodiesel are mitigated, while keeping impacts to stakeholders to a minimum.

[27] See "Content Sheet 10-1: Overview of External Quality Assessment, World Health Organization." Available at: https://www.who.int/ihr/training/laboratory_quality/10_b_eqa_contents.pdf. Accessed October 5, 2020.

However, staff has considered stakeholder comments regarding the proposed two-laboratory certification and is also proposing additional options that do not require two-laboratory certification. Please see response C-2, Chapter IV, certification testing, for proposed amendments to the multi-laboratory requirement for certification testing. These proposed amendments can be found in the proposed regulatory text as follows: Single Engine Acceptability Testing at (a)(2)(F)2.a. and Prior Emissions Certification Engine Testing at (a)(2)(F)2.a.iv. of the proposed amendments to the ADF regulation.

D-2. *Requirements Overly Burdensome*

Comment: Aside from any statistical analysis, in attempting to make so many changes to the ADF at once, CARB runs the risk of making the new requirements so overly burdensome that stakeholders may not participate in such a complex certification process given the narrow window of opportunity to recoup any additional testing investments. As it stands presently, the testing CARB is proposing would likely impede biodiesel market development as opposed to advancing it.

…

Thank you for the opportunity to comment on the information communicated by CARB at the subject event. **We want to applaud CARB** for documenting what was obvious to most but skirted by one, and formalizing self-evident chain of custody (slide 22) and testing (slide 19) procedures which we will believe alone will prevent fraud from occurring.

…

While the ADF needs to be updated and the regulation calls for such, CARB is placing a significant new burden on all stakeholders with the new proposed testing requirements. Considering the information we've presented regarding CE-CERT's evaluation of VESTA® and the overly harsh reference and candidate fuels selected by CARB for CE-CERT testing, we believe it's in the better interest of all stakeholders to implement three changes at this time:

1. the new chain of custody requirements proposed in slide 22;
2. the new testing requirements in slide 19; and
3. the "in-use" testing "trigger" language proposed above [Refer back to E-1 Alternatives – In Use Testing Alternative, comment OP_CAF1_1-4]

(OP_CAF1_1-2)

Comment: However, CARB is seeking to make changes to the ADF testing regimen which are overly burdensome from a certification perspective.

…

Current EO holders have invested in certification testing at considerable costs. Two (2) companies have six (6) EO's which using CARB's estimates equates to a collective investment of over $1 million. Businesses have been built to support the EO's, including storage at third party facilities, transportation arrangements, equipment investments, etc. CARB is now asking these companies to make a difficult choice - (1) ante up the new testing costs or (2) exit the business. This is a lose/lose proposition wherein CARB is being unfair to existing and valid EO holders. (OP_CAF3_3-2)

Comment: 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. (OP_EMA1_4-4)

Comment:

d. ***CARB/Industry doesn't introduce similar multi lab burdens on other required fuel tests. Instead, procedures, along with repeatability and reproducibility standards are developed to ensure that fuels are tested properly at any credible lab. Wouldn't the development of written product handling, blending, sampling, physical testing, chain of custody, along with incorporating the testing of unadditized candidate fuel at the single lab provide necessary assurances, without unnecessary costs, time detriments, and reproducibility issues associated with multiple labs?*** (OP_BC1_6-5)

Comment: Furthermore, the 2 lab test is overly burdensome to our industry and imposes far harsher restrictions on testing than the fuel we are mitigating. (B_NL1_B6-4)

Comment: CARB Should Prioritize Amendments that Ease, Rather than Further Burden, an Already Depressed Industry Which Has Been Largely Responsible for the LCFS' Success.

With the above in mind, NBB is very concerned about the additional regulatory barriers CARB is contemplating to the continued and expanded use of biomass-based diesel with these proposed amendments. (B_NBB1_B7-3)

Comment: If the proposed ADF changes are implemented as is, this will create a regulatory barrier to the consumption of biodiesel in California.

…

Without an ADF additive solution or the ability to procure enough renewable diesel to blend it at the proposed ratio, they will have to reduce their consumption of biodiesel by over 50%. (B_CRE2_B8-2)

Comment: There's a very good chance that while we have a number of executive orders that have been submitted and approved, we may not resubmit those going forward. And I'd like to point out that staff presentation on the additives were just that, additives. There was no work done on blends of BD into RD. REG has three executive orders on those products. Not one iota of testing was done. No questions to the best of our knowledge have been raised about them. And yet, we will be folded into this new process going forward. (T_REG2_T2-5)

Comment: However, we are concerned about the proposed amendments to the ADF rule, as it may present barriers to our business. We are concerned with two primary issues. Scott highlighted these issues previously, but they are also further detailed in our submitted letter. These issues are the proposed blender issue and the duel lab certification.

Although, the blender issue favors the RD side of our business, that could come at the expense of biodiesel. Our ability to continue growing in state production of renewable diesel and jet fuel depends on stable demand for our marquee product. (T_WE1_T3-1)

Comment: Furthermore, the two lab test is overly burdensome and our industry -- and imposes far harsher restrictions on testing than the fuel we are actually mitigating. (T_NL2_T10-5)

> **Agency Response:** In order to ensure that California's policies to encourage use of lower carbon intensity transportation fuels do not result in increases in air pollutants, it is imperative that biodiesel blends be mitigated such that NOx emissions are equivalent to California diesel fuel. In three studies, published in

2011,[28] 2013,[29] and 2020,[30] CARB tested the efficacy of biodiesel additives in mitigating potential increased NOx emissions from biodiesel. All three studies found the tested additives (except DTBP) to be either completely or partially ineffective at remediating NOx emissions. The 2020 ADF in-use program review included confirmatory emissions testing of two certified additives. Statistical analysis of the results of the testing demonstrated that none of the additive formulations tested met the certification test criteria for NOx emissions equivalency compared to California diesel reference fuel. These results are in stark contrast to the certification results reported by the additive certification applicants showing the effectiveness of two additives.

For the reasons above it is clear that the certification testing program as originally structured was not resulting in reliable, consistent results, and was likely resulting in unrealized NOx emissions reductions. The CARB confirmatory testing did not include testing of any of the previously approved renewable diesel formulations. However, some of the same potential reasons for inconsistency between the confirmatory testing and certification testing for additives may exist for renewable diesel formulations as well, meaning the certification procedures as proposed must also apply to renewable diesel/biodiesel blends below the approved renewable diesel blend level of less than 55 percent.

As explained in the staff report and throughout this record, this rulemaking addresses this uncertainty to ensure that, moving forward, all certified additives and formulations will effectively mitigate any potential NOx emissions increases as needed. The amendments require all certified products going forward to use the same testing procedures, and ensure these procedures are rigorous, and consistent with the public health protection purposes of the ADF regulation.

Regarding the comments that the requirements are overly burdensome, there are other certification and verification programs regarding diesel fuel and diesel fuel emission control devices that have similar, overlapping emissions testing requirements when compared to the ADF regulation. For example, the California Diesel Fuel Regulations, Code of California Regulations (CCR),

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[28] See "CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California - "Biodiesel Characterization and NOx Mitigation Study."" Durbin, et al. October (2011). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20111013_carb%20final%20biodiesel%20report.pdf.

[29] See "CARB B20 Biodiesel Preliminary and Certification Testing." CARB. July (2013). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20140630carb_b20_%20additive_study.pdf?_ga=2.223680735.515147789.1572476259-1811565499.1498254338.

[30] See "Confirmatory and Efficacy Testing of Additive-Based Alternative Diesel Fuel Formulations." CARB. March (2020). Available at: https://ww2.arb.ca.gov/sites/default/files/2020-03/ADF_BD_Additive_Testing_Report_March2020.pdf.

chapter 5, section 2282(g) Certified Diesel Fuel Formulations Resulting in Equivalent Emissions Reductions[31] and the Verified Diesel Emission Control Strategy under CCR, Chapter 14, Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines[32] have similar and overlapping certification and verification requirements when compared to the ADF regulation. These regulations have been in place for many years.

The proposed amendments will add some certification requirements needed to reinforce the ADF regulation, which requires additional chain of custody and certification testing requirements.

The potential economic burden of additional certification requirements has been quantified by potential additional new certification costs, potential additional fuel additive costs, and any additional fuel costs associated with the new formulation being proposed for general public use (see Chapter VIII of the Initial Statement of Reasons for the economic analysis). To address concerns of potential economic burden, the amendments have been structured to give stakeholders maximum flexibility in complying with the proposed amendments.

For more information on the reasoning behind two-laboratory certification please refer to response D-1 in this chapter, and regarding single lab, single fuel alternatives please refer to response E-2 in this chapter.

For proposed amendments allowing single engine certification testing upon completion of engine acceptability testing, please refer to Chapter IV, C-2 regarding proposed amendments to the multi-laboratory requirements for certification.

D-3. *Two Fuels*

Comment: First of all, we do not believe that testing with two unique reference fuels, one of which is a lab based reference fuel and a single producer's CARB diesel fuel is certainly not an assurance of in-use efficacy and could possibly result in the same questioning going forward.

Again, I think we believe that a much more cost effective and more relevant approach would be to test in-use average car diesel fuel, something of that nature against B20 produced from the same CARB diesel, and average low set biodiesel, and then again all ADFs to use the same exact fuels. It would be a much more appropriate approach,

[31] California Diesel Fuel Regulations. Title 13, Division 3, Chapter 5, Article 2, Section 2282(g).

[32] Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines. Title 14, Division 3, Chapter 14, Sections 2700 – 2711.

and get rid of some of the concerns regarding blending and other issues. (T_BC2_T13-1)

Comment:

5. Delete the testing requirements related to Designated Equivalent Limits Diesel fuel. (OP_EMA1_4-10)

Comment:

e. Please explain how two boutique fuels, a lab based Reference CARB Diesel Fuel and a single Refiner's DEL CARB Diesel Fuel, will ensure that potential NOx emissions from in-use biodiesel is mitigated (for example: It's well known that cetane improvers have a cetane response curve that provides much less improvement in cetane number as the treat rate is increased. Therefore, in this example, using 2 boutique fuels as Reference Fuels, which contain little to no cetane improver, to certify a cetane based fuel additive, would hardly be representative of a cetane based additive's effectiveness in reducing NOx in biodiesel blends produced with CARB diesel fuels that already contained cetane improver)?

f. Wouldn't an average CARB diesel fuel, obtained from comingled storage by CARB and used by all applicants be more representative of in-use CARB diesel and eliminate the need for multiple fuels? (OP_BC1_6-6)

Agency Response: The reference fuels proposed to be included in the testing protocols meet CARB specifications and provide a uniform point of comparison across certification test programs within the ADF regulation. The reference fuels included also meet the specifications of the CARB diesel regulation reference fuel.

Regarding the availability of the specified Reference CARB Diesel test fuels there is an active industry in producing these fuels to required specifications[33] including CARB Diesel reference fuels. Many organizations and companies require reference and test fuels, such as vehicle and engine manufacturers, refiners, petroleum marketing organizations, additive suppliers, governmental regulatory agencies (such as the U.S. EPA and state regulatory agencies), general interest groups, consumer groups, and consultants.

[33] See "Diesel Fuels Technical Reviews, Chevron Corporation." (2007). Available at: https://www.chevron.com/-/media/chevron/operations/documents/diesel-fuel-tech-review.pdf. Accessed October 22, 2020.

Regarding the availability of Designated Equivalent Limits Diesel for use in comparative testing, Designated Equivalent Limits Diesel is defined as a commercially available California diesel fuel that does not contain biodiesel or DTBP and meets all of the specifications set forth in section 2282(h)(1). Designated Equivalent Limits Diesel is a commercially available fuel that is not difficult to obtain.

Generally, commercially available CARB diesel contains an order or more of magnitude less cetane improver than what currently certified additives under the ADF program used during previous certification testing, so it is unlikely that the cetane response curve will affect additive efficacy.

CARB rejects the suggestion that CARB supply the test fuels for this certification program. The amended regulations clearly define the specifications for the diesel test fuels, thereby providing sufficient information to applicants to procure the necessary test fuels. Consistent with CARB's role in this context as regulatory agency, CARB has proposed to establish clear regulatory procedures the certification testing. CARB is the regulatory agency in this context, not a fuel supplier.

D-4. *Certification Laboratories*

Comment: In Appendix C of the January 2020 ISOR, the "Cost to Industry" section, CARB states "[s]ince the amendments require testing at two independent labs, parts of the emissions tests will have to be contracted with out of state lab(s). There are at least two out-of-state labs potentially available for the testing." Initially, CARB should identify all approved labs. (OP_CAF3_3-4)

Agency Response: Because, consistent with section (a)(2)(A)1. of Appendix 1 of Subarticle 2, title 13, California Code of Regulations, CARB evaluates test protocols submitted against regulation for approval, rather than specific proposed laboratories, no laboratories themselves are subject to CARB approval.

D-5. *Chain of Custody*

Comment:

k. ***Regardless, BEST does agree with incorporating sound improvements to Chain of Custody requirements that improve uniformity and assurances during the promulgation of regulation or amendments of regulations.***
l. ***Please explain how shipment of fuels directly from source or lab ensures adequate chain of custody assurances.***

…

o. **Wouldn't it make more sense for Chain of Custody improvements to be based upon defined written procedures that include tamper proof seals, witnessing/qualified observer verification, documentation, and any other requirements that maintain security and assurances without impeding product certification, etc.?** (OP_BC1_6-8)

Comment: I agree changes need to be made to improve the ADF, specifically in the chain of custody protocol. For those of us who follow the protocol and legitimately certified our products, in our case three times, we should not be required to retest. Retesting should only apply to those whose chain of custody could not be verified. (T_CAF4_T7-2)

Comment: Yes, the ADF Regulation needs improvement, main -- mainly chain-of-custody changes. (T_CAF5_T8-1)

Agency Response: Staff appreciates the support for the chain-of-custody provisions. The objective of the proposed ADF amendments, including the chain of custody provision, is to ensure that the process for certification of additives or alternative diesel fuel formulations is consistent for all products in the market, and to provide assurance that those additives or formulations that pass emissions testing are effective in mitigating the potential NOx emissions from biodiesel use.

CARB rejects the recommendations to add specific chain of custody requirements of using particular sorts of seals, observers, or documentation, as unnecessary. The proposed chain of custody provisions should provide better chain of custody assurance without adding intrusive additional requirements that ultimately do not provide as strong a chain of custody as direct shipment of fuels from the manufacturer. The proposed shipment of test fuels, additives, and other candidate fuel blending components from product source facilities to emissions test facilities and independent laboratories reduces the points of contact for these items, reducing the risk of the items being tampered with, and is simpler to implement.

Regarding the commenter's objection to the requirement to retest previously certified additives, staff detailed the justification for requiring all biodiesel additives and ADF formulations to be uniformly certified according to new certification procedures in the staff report.[34] Please also see responses B-1, D-2, and G-1 in this Chapter regarding the need for certification of all additives and ADF formulations using rigorous and consistent testing procedures. Staff also notes that confirmation testing of additive formulations containing commenter T_CAF5_T8-1's VESTA® 5100 and 1000 additives did not meet the criteria for NOx emissions equivalency compared to California diesel reference fuel.[35]

D-6. *Engine Selection*

Comment:

b. All approved ADF NOx Mitigants were certified using the DDC Series 60 (S60). The recent EMFAC workshop presentation indicates there is a significant population of pre-1995 vehicles which appear to outweigh the 2004-2006 vehicle population.

   i. Question: Will CARB allow for the continued use of the S60 for either: (a) retesting of previously approved additives; and/or (b) testing of new additives/treat rates under the proposed new testing requirements? (OP_CAF1_1-8)

Comment: Fuel additive dose response is, in most cases, determine [*sic*] using laboratory bench-type testing. Additives normally help fuels meet specifications which are set by ASTM, EPA and in some cases CARB. NOx Mitigants, however, must by engine tested and validated which is a more expensive proposition than bench testing. To date, all ADF EO holders have used the Detroit Diesel Series 60 ("S60") engine at Southwest Research Institute ("SwRI") for certification. CARB has also used the S60 at CE-CERT to conduct certification testing. Beyond the ADF, the S60 has been used by all parties for certification of alternate diesel formulations for which some 30+ exist. CARB has a significant database at its hands from which to understand all sorts of

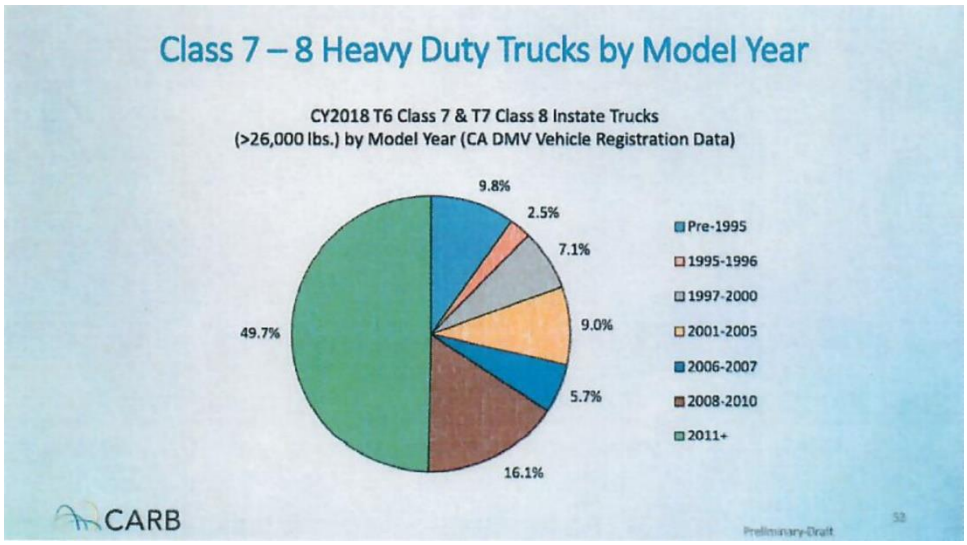
[34] See page 15 of "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels – Staff Report: Initial Statement of Reasons." January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.264481480.658186833.1586968595-1042658205.1574400241.

[35] See "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels – Staff Report: Initial Statement of Reasons, Appendix B: Technical Evaluation." January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isorappb.pdf?_ga=2.87180442.328904607.1612397125-211680084.1591108534

relationships between fuel composition, additive response, emissions impact, etc. From a CARB diesel emissions testing perspective, the S60 is the established "gold standard".

CARB is now proposing to change the engine required for ADF certification and alternate diesel formulations emissions testing, from the 1990-1992 Detroit Diesel Series 60 (S60) to a 2004-2006 Cummins, only two (2) years after ADF regulation implementation requiring the use of NOx Mitigants. The S60 knowledge platform that's been developed by companies to-date will be drastically diminished in technical value because there's no established emissions correlation between the S60 and the Cummins engines. All stakeholders will be required to implement research and development programs geared around testing in the Cummins engine, the considerable costs for which all will be addressed below. Further complicating this matter is CARB's proposed timeline – finalization of the new ADF by July 1, 2020 followed by implementation on January 1, 2021. Research and development activities require significant more time – VESTA® 1000, our first approved mitigant, for example, was the result of twenty (20) months of research and development. In most additive commercialization efforts, like NOx Mitigants, companies would expect some significant period to pass before a test engine change is made. Additionally, companies expect far more notice when changing from one engine to another. While CARB provided advance notice of the S60's expiration, they have not allowed the NOx Mitigant market to properly mature for a period in time and are now proposing to institute a new test regimen in too short an amount of time.

In October 2019, CARB delivered a webinar entitled "EMFAC202x, An Update to California On-road Mobile Source Emissions Inventory". As indicated in the presentation slide provided on page 2, pre-1995 vehicles make up approximately 10% of the population. While the heavy-duty vehicle population for the 2004-2006 period is not reported, it is highly likely that the pre-1995 and the 2004-2006 vehicle populations are similar in size. We point this vehicle population comparison out because we believe that the S60 is just as representative of the California fleet as the Cummins. When you then factor in that the S60 produces more NOx emissions than the Cummins engine, the more important metric for NOx mitigant efficacy is an additive's performance in an S60.



Moreover, there is insufficient testing experience to establish the Cummins engine as an ADF benchmark which is a significant downside risk to requiring it. At the December 18, 2019 ADF workshop, CARB indicated that the ADF's new proposed testing requirements are "technically feasible"; we don't understand how CARB can be so confident based on its past experiences. To our knowledge, no ADF engine testing has been conducted since July 2018 which coincides with the expiration date of the S60 on top of which we're not aware of any Cummins engine testing completed recently at any facility resembling the ADF's existing requirements. We believe this is a reflection of stakeholder lack of confidence in the Cummins engine. The majority of ADF type Cummins engine work has been conducted by CARB at CE-CERT. In October 2011, CARB conducted Cummins engine screening work on biodiesel blends and additives, using a Reference Fuel containing 18.7% aromatics closely resembling CARB's newly proposed "Diesel Equivalent Limits Fuel". In July 2013, CARB screened 5 proprietary additives, each at a different treat rate using a Reference Fuel containing 9% aromatics which meets the ADF's current specification. CARB has spent considerable monies testing fuels and additives in the Cummins engine at CE-CERT and to date has failed to show the Cummins engine as a reliable method for the testing and development of either a NOx mitigant or Formulation per the existing ADF's requirements.

Relatedly, there is no existing Cummins NOx emissions data supporting a linear relationship between either biodiesel blend levels, NOx Mitigant performance, RHD, combinations thereof in a Candidate Fuel versus a Reference Fuel. When the ADF was instituted, CARB used a linear model when determining the relationship between NOx Mitigants or RHD and biodiesel. CARB applied this approach to DTBP as the first approved NOx Mitigant (B20 requires 10,000 ppm DTBP, B10 requires 5,000 ppm of DTBP, etc.). Once a B20 NOx Mitigant level is approved, CARB uses the same scaled down linear model as DTBP. VESTA®'s dose response performance supports CARB's linear view. There is no basis to support a linear model for the Cummins engine for

either NOx Mitigants or RHD-based formulations. Further work is required to investigate this matter before positions can be taken and supported.

…

Regardless, the two (2) facility, two (2) engine and two (2) fuel requirement further raises repeatability and reproducibility concerns beyond which have been separately documented by California Fueling in our January 10, 2020 comment submission. We are not aware of any 2004-2006 Cummins engine-to-engine or lab-to-lab comparative emissions testing of the same fuels. Given this knowledge gap, use of the Cummins engine for ADF certification testing is not appropriate at this time. Placing this experimental Cummins engine repeatability and reproducibility burden of proof on ADF applicants is unfair, will add to NOx Mitigant development costs and only plays against CARB's stated goal of having multiple approved NOx Mitigants in order to increase biodiesel use.

If CARB are going to insist on requiring the Cummins engine for ADF certification, CARB should address engine repeatability and reproducibility concerns in the new ADF and consider building a "tolerance" into the two-facility approach. In addition, CARB's ADF statistical analysis, Appendix l(G)(3), provides for an allowance of 1% for NOx. As CARB knows, there is a significant NOx rating difference between the S60 and the Cummins engine. It's only fair that these tolerance levels be part of any new ADF. (OP_CAF3_3-3)

> **Agency Response:** CARB rejects the suggestion to allow the use of the Detroit Diesel Corporation (DDC) Series 60 engine for certifying B20 ADF formulations. The 2004-2006 Cummins ISM370 is the engine required for certification under the ADF Regulation because it is required for certifying new emission-equivalent California diesel fuel formulations. The allowance for additive dosages to vary linearly with biodiesel content is based on the blending ratios that can occur when different diesel fuels are blended in vehicle fuel tanks and is not based on which engine is used for certification.
>
> Repeatability of test results has not been an issue and is not expected to be an issue with the newer engine. The purpose of the tolerance is to provide a high level of certainty that a fuel that is tested against itself would pass. The 1.0 percent tolerance for NOx emissions has been very adequate, based on individual test result repeatabilities (which are proportional to the standard deviations from the mean).
>
> Regarding the comment that the regulation implementation date of January 1, 2021, does not allow sufficient time for testing and certification of additives, staff proposed in the first 15-day notice to change the effective date for certification of additives and formulations in accordance with the amended

requirements to April 1, 2021 and staff proposed in the second 15-day notice to change the effective date to August 1, 2021.

D-7. *Qualified Observer*

Comment:

g. ***BEST agrees that a qualified observer would prove beneficial in providing necessary assurances. However, please explain how verification by independent state-licensed professional engineers, in an undefined field of engineering and paid by the applicant, provides the necessary verification or assurance?***

h. ***Wouldn't a qualified observer with experience in fuel handling, blending, sampling, testing, and emission testing, paid by CARB, provide a less disputable verification and better assurance?*** (OP_BC1_6-7)

Agency Response: Staff appreciates the support for the proposed amendment that a qualified observer would be beneficial in providing necessary assurances. The independent state-licensed professional engineers must be impartial and independent from the testing lab. The engineer's qualification and impartiality to the lab will be screened by CARB staff prior to the lab contracting the engineer as a part of the test protocol approval process. The engineer observing the testing must be able to confirm that all procedures were conducted as approved in the test protocol.

D-8. *Additive and Test Fuel Information and Retains*

Comment:

ii. "After the test protocol has been approved by the Executive Officer, and before the beginning of any emissions testing, each emission test facility shall ship to the California Air Resources Board retained samples of all test fuels, additives, and blending components, identical in composition and volume to the samples sent to the independent laboratory for analyses. The emission tests shall not be conducted until the Executive Officer has notified the applicant in writing that the retained samples have been received by the California Air Resources Board facility",

1. ***Please explain how the proposed retains ensure a uniform playing field and how any applicant could justify investing in emission testing certification, knowing that after the fact, CARB could perform unknown tests of old retains, and with unknown consequences (the new proposed procedures will likely take longer than the shelf life of the fuels)?***

2. ***What is the accepted shelf life of Biodiesel and B20 blends?***

3. ***Can the chemical composition of fuel change once it has exceeded its shelf life, and if so, would the samples continue to be representative of the fuel that was emission tested?***

4. ***BEST doesn't disagree with CARB's ability to verify physical lab test data. However, if CARB wishes to test or verify lab tests as listed in iv. above, then shouldn't the samples be sent to CARB at the same time as they are sent to the independent lab and shouldn't there be a required timeframe in which CARB has the opportunity to perform any potential testing, then destroy retains (two weeks for example: or another reasonable and defined time determined necessary to perform at least some minimal confirmatory testing along with the opportunity to perform comprehensive verification, to avoid product degradation, to enable stakeholder control of investment, to maintain confidentiality, and to eliminate discrimination)?***

iii. "the applicant must submit data to CARB that demonstrates meeting this provision prior to test fuel approval",

1. ***Please explain specifically what data, as this must be defined to ensure uniformity and necessary assurances?***

iv. "add the requirement for three measurements of the Unadditized Cetane Number to be performed with the same equipment and operator as for Diesel Test Fuels."

1. ***Although BEST agrees with the concept, given the sheer volume of fuels to be tested from two separate labs, has CARB determined that it is feasible for a physical lab and applicant to meet this proposed requirement, and would this testing need to be performed over multiple days and performed around lab personnel scheduling?*** (OP_BC1_6-10)

Agency Response: In response to the commenter's questions related to retains, and as stated in the staff report,[36] the purpose of the provision requiring that fuel retains be sent to CARB is to provide for additional verification of test

[36] See "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels – Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.264481480.658186833.1586968595-1042658205.1574400241.

fuel properties and composition. This additional verification helps to provide a level playing field by providing confirmation of the reported composition and properties of each fuel used in the certification testing. It is up to each individual additive or ADF formulation producer to determine whether it is worthwhile to attempt to certify its additive or ADF formulation under the ADF requirements. The shelf life of biodiesel and B20 blends depends on the storage conditions of the fuel (e.g., ambient temperature and humidity, whether the fuel is stored in a sealed container and under a nitrogen blanket). Fuel degradation can occur over time, and the extent to which degradation impacts the fuel properties depends on a number of factors (e.g., the fuel properties of concern, length of storage, and storage conditions). Staff does not agree that a specific timeline should be set for CARB to conduct testing and then destroy fuel retains. The retention of fuel samples may provide the opportunity to conduct additional fuel analyses at a future date if potential concerns are raised about the test fuels.

In response to the commenter's question related to data submission, staff notes that there are two instances of the quoted text (i.e., "the applicant must submit data to CARB that demonstrates meeting this provision prior to test fuel approval") in the proposed regulation order. In the first instance, the applicant must submit data or information indicating that the biodiesel certification fuel does not contain DTBP or other additives. In the second instance, the applicant must submit data or information indicating that the Reference CARB Diesel fuel does not contain biodiesel, DTBP, or other additives. The applicant must submit data and information that may include a declaration from the fuel producer indicating that the fuel does not contain biodiesel, DTBP or other additives and laboratory analyses indicating that cetane-enhancing additives, including DTBP and 2-EHN, are not present in the fuel.

In response to the commenter's question related to unadditized cetane number measurement, staff have determined it is feasible for the Independent Laboratory to meet the proposed regulation's requirements that three measurements of the Unadditized Cetane Number be performed on the Biodiesel Additive Certification Fuel and the Diesel Test Fuels sent by each Emissions Test Facility to the Independent Laboratory, using the same equipment and operator at the Independent Laboratory.

D-9. *Feasibility of Proposed Testing Regimen*

Comment:

4. Slide 23 – During the workshop, CARB indicated the proposed testing regimen is "technically feasible". We believe there are a number of feasibility concerns.

    a. The timeframe to gather fuels and test will take more than 6 months especially considering the potential demand on engine testing facilities.

i. Question: Will CARB consider allowing more time to meet any potential new testing requirements, and if so, under what circumstances? (OP_CAF1_1-7)

Comment:

v. "Demonstration that use of the proposed ADF additive or formulation to mitigate NOx emissions is based on sound principles of science and engineering. Such a basis may be demonstrated with data from peer reviewed journal articles or a description of the Appendix A: Proposed Regulation Page A-3/A-17 2. 3. proposed chemical mechanism of pollutant reduction during combustion along with preliminary test data and independent academic analysis."

1. ***Please explain how this proposed demonstration language ensures a uniform playing field, without discrimination and unwritten discretion, and the effect such language will have on the enabling of new technologies (particularly in light of such information infringing upon IP, and CARB's potential inability to maintain Confidential Trade Secret information)?***

2. ***Doesn't following comprehensive written certification procedures and regulations provide the necessary assurance of ADF efficacy, ensure uniformity, and enable technology?***

3. ***Is there a concern that the addition of discretionary language circumvents the purpose of rulemaking requirements?*** (OP_BC1_6-9)

Comment:

1. Delay the implementation date of the rulemaking until at least 12 months following OAL approval. (OP_EMA1_4-8)

Agency Response: CARB rejects the specific suggestion to delay implementation for 12 months following OAL approval, as explained in this rulemaking record,[37] based on the urgent need to confirm that potential NOx

[37] See "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels, Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.142177842.1277515527.1593467990-211680084.1591108534 and "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the

emissions increases from biodiesel blends sold and used in California are mitigated. But, in response to stakeholder comments suggesting that more time may be helpful, and based on the time needed to complete the rulemaking process, staff proposed, with modifications released for public comment, first to move the date after which only ADF additives and formulations certified under the amended ADF certification testing requirements may be used from January 1, 2021 to April 1, 2021, and then from April 1, 2021 to August 1, 2021. Staff anticipate that the ultimate August 1, 2021, date will allow a reasonable balance between promptly correcting any NOx emissions associated with the use of ineffective additives, while enabling prospective applicants sufficient time to certify NOx mitigating additives or formulations. Please also see response D-2 in Chapter IV regarding extension of the date after which only biodiesel additives or ADF formulations approved or certified under the proposed amendments can be used to comply with biodiesel in-use requirements.

The quoted regulation text from Section (a)(2)(A)1.f. in Appendix 1 of Subarticle 2 supports the purpose of the amendments. Specifically, the provision is designed to facilitate the use of new or novel technology, as long as the basis for the technology can be scientifically supported through explanation of the NOx reduction mechanism or testing data subject to academic review. As explained in the staff report,[38] the sound science and engineering demonstration standard is necessary to ensure that submissions of additives and formulations may balance innovation with scientific rigor. Because the additive or formulation is likely to be, or to rely on, new technology that may not have been previously demonstrated, some range of flexibility on what type of demonstration will be adequate is necessary. The demonstration standard may be made with data from peer-reviewed journal articles or a description of the proposed chemical mechanism of pollutant reduction during combustion along with preliminary test data and independent academic analysis.

CARB is required by law to protect designated confidential trade secret information.

Commercialization of Alternative Diesel Fuels. CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf.

[38] See pages 7-8 of "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels, Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.142177842.1277515527.1593467990-211680084.1591108534.

D-10. *Approval of DTBP*

Comment:

1. Slide 7 – DTBP has not been evaluated against the current ADF protocol. Additionally, if there are any additional testing requirements, DTBP should be required to meet such. At a minimum, DTBP should be tested and shown to perform against an ADF compliant Reference Fuel, something that has never occurred. If not, DTBP should be removed from the list of approved products.

    - Question: Will DBTP be subject to any new ADF requirements or any further testing? (OP_CAF1_1-5)

Comment:

Item B. – CARB's Emphasis of DTBP's Approval

Following on from our last public submission (submitted on 1/10/20) particular to Appendix B of the 1/7/20 ISOR, CARB states "emissions testing has also shown that the NOx-emission increase associated with a B20 blend can be mitigated with the use of ditertiary butyl peroxide (DTBP), an additive, at a dosage of 1.0 percent. Appendix 1 of California's Alternative Diesel Fuels (ADF) regulation (13 CCR 2293, et seq.) allows the use of DTBP as a NOx mitigation additive in biodiesel blends of up to 20 percent." However, these two statements are misleading. As you are aware, CARB's emission testing of DTBP is not ADF compliant, using neither an ADF-based reference fuel nor any of the approved test sequences (Alternatives 1-3). In fact, there is very limited DTBP emissions data, nowhere near what the ADF requires.

Question 8.:[*sic*] **What is the basis for CARB's apparent continued position that DTBP is an acceptable NOx mitigation additive?**

Question 9.:[*sic*] **How can CARB possibly justify upholding DTBP's approval and proposing an ADF Public Formulation, neither one of which meets the ADF's current requirements never mind the futures while potentially striking down other existing NOx Mitigant approvals that meet all the ADF's requirements when neither DTBP nor the proposed ADF Public Formulation have the associated data to support ADF certification?** (OP_CAF2_2-9)

Agency Response: Because the effectiveness of DTBP as a NOx mitigant has been well established[39] on prior rulemaking records, and no new information

[39] See "CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California - "Biodiesel Characterization and NOx Mitigation Study."" Durbin, et al. October (2011). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20111013_carb%20final%20biodiesel%20report.pdf.

calls that principle into doubt, there proposed amendments do not alter the regulatory designation of DTBP as an additive to reduce NOx emissions from the use biodiesel as a fuel. Because new information suggested that additives certified under existing procedures may not have been effective at reducing NOx to equivalence with CARB diesel,[40] these proposed amendments are designed to reinforce the certification process for biodiesel blends so that the effectiveness of any NOx mitigants or formulations is assured.

E. Alternatives

E-1. *In-Use Testing Alternative*

Comment: Further, we support modifying the "in-use" requirement, which we have outlined in out December 20th workshop comments submission (attached for the record), to include NOx Mitigant confirmation testing in a "Designated Equivalent Limits Diesel". This modification may be a happy medium as opposed to CARB's proposed two facility two fuel approach.

f. **Question: As opposed to CARB adding the newly proposed ADF test regimen, why not modify the current ADF"s "In-Use" language to allow CARB to trigger an Executive Order suspension (temporary then permanent) and require mandatory second round testing (e.g., the Designated Equivalent Limits testing outlined on slide 19) when CARB has reason to believe that previously submitted test results fail to meet established and pre-defined science-based criteria.** (OP_CAF1_1-4)

Comment: Again, I think we believe that a much more cost effective and more relevant approach would be to test in-use average car diesel fuel, something of that nature against B20 produced from the same CARB diesel, and average low set biodiesel, and then again all ADFs to use the same exact fuels. It would be a much more appropriate approach, and get rid of some of the concerns regarding blending and other issues. (T_BC2_T13-2)

Agency Response: CARB staff believes that two-facility testing with two Diesel Test Fuels is necessary to guarantee the efficacy of NOx mitigating additives in biodiesel and is a critical aspect to improving the reproducibility of emission-equivalence testing and the validity of certification.

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[40] See "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels, Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.142177842.1277515527.1593467990-211680084.1591108534.

CARB rejects the commenter's proposal to modify the ADF regulation to allow CARB to trigger an Executive Order suspension and require mandatory second round testing using Designated Equivalents Limits Diesel because this alternative would only require Designated Equivalents Limit Diesel testing if CARB has reason to believe that previously submitted test results fail to meet established and pre-defined science based criteria, and would not ensure that the fuels used during emissions testing are representative of commercial fuels. As indicated in the staff report,[41] the requirement for certification testing to include Designated Equivalents Limit Diesel was added to ensure that the fuels used during emissions testing are representative of commercial fuels.

CARB also rejects the commenter's proposal to test "in-use average car [*sic*] diesel fuel, something of that nature against B20 produced from the same CARB diesel, and average low set biodiesel, and then again all ADFs to use the same exact fuels." In-use CARB diesel may contain biodiesel and/or DTBP and has a wider range of possible specifications than reference diesel, therefore this proposal would not ensure that fuel specifications are consistent within a given set of tests or across different certification testing programs. As indicated in the staff report,[42] the requirement to use Designated Equivalents Limit Diesel is necessary to that the diesel test fuels used during emissions testing are representative of commercial fuels and to ensure a representative emissions test of a NOx control additive or formulation.

Please also see response D-1 in this chapter regarding two-laboratory certification and response D-2 in this chapter regarding use of Designated Equivalent Limits testing.

E-2. *Single Lab, Single Fuel Alternative*

Comment:

6. Consideration of Alternatives (Gov. Code, 11346.5, subd. (a)(13))

a. *Has CARB determined that a multi lab approach, with two boutique reference fuels, that includes discretionary language, and more than*

[41] See page 6 of "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels, Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.142177842.1277515527.1593467990-211680084.1591108534.

[42] See page 6 of "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels, Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.142177842.1277515527.1593467990-211680084.1591108534.

triples the cost of certification, is more cost effective, ensures a more uniform playing field, and better ensures that additives or formulations that pass emissions testing <u>are effective in mitigating potential NOx emissions from biodiesel use</u>, than regulation that would utilize average in-use CARB Diesel as the Reference Fuel, that uses the same Reference Fuel and Biodiesel for all potential applicants, that is tested in a single emissions lab under written well defined procedures, that also emission tests untreated Candidate fuel to verify lab performance and additive efficacy, and with strict adherence to specific written regulatory procedures, and without discretion? (OP_BC1_6-13)

<u>Agency Response</u>: CARB rejects the commenters' implicit objections to the proposed amendment approach. Supported by the staff report and other materials in the rulemaking record, CARB has determined that the proposed approach, of two-facility testing with two Diesel Test Fuels, meets the he overall rulemaking objective to ensure that proposed additives and formulations are effective in mitigating potential NOx emissions from biodiesel use. The use of two Diesel Test Fuels are intended to represent the range of CARB diesel fuels that may be found in the marketplace. Please see also response D-1 in this chapter regarding two-laboratory certification, to response D-3 in this chapter regarding certification testing using two fuels, and to response D-9 in this chapter regarding the feasibility of the proposed testing regimen.

As described in the first 15-day modifications,[43] staff proposed adding an amendment provision to allow certification of B20 formulations using a single test engine at a single facility after demonstration of the acceptability of that engine and facility.

E-3. *Legacy Certification Provision for Existing Executive Orders*

<u>Comment</u>: California Fueling proposes that CARB grandfather certain EO's, and if warranted, subject them to an "in-use", to be defined, testing requirement using the newly proposed chain of custody requirements in a "Designated Equivalent Limits Diesel" using the S60. In fairness to the front-end investments made and ongoing businesses developed by successful ADF applicants, the regulations need to provide for a grandfathering provision.

Relatedly, we wish to address VESTA®'s performance which CARB addressed during the Poet litigation where in Poet questioned "… the evidence concerning the certification and efficacy of the alternative additive [VESTA®]." CARB responded to

[43] See pages 3-4 of "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information." CARB. October 14 (2020). Available at: https://ww2.arb.ca.gov/rulemaking/2020/adf2020.

this question by indicating that"… the certification is indisputable [VESTA®]."[1] In the same CARB filing addressing the use of DTBP, CARB attorneys indicated"… the ADF regulation expressly anticipated the development of other ways to mitigate biodiesel-related NOx emissions and created a path for certification of such measures. As of July 20, 2017, a difference additive – VESTA® 100 – has been certified as compliant with the ADF requirements to reduce NOx emission from biodiesel"[1] and further that "VESTA® provides a separate, independent and unchallenged way to reduce those very emissions."[1] CARB's on the record view of VESTA® through the Poet litigation and reliance on the same in its efforts to show compliance with the Court's Orders issued in connection therewith, support our grandfathering request.

[1] Poet, LLC v. California Air Resources Board, "Respondents Reply to Petitioners' Opposition to Respondents Motion for Judgement on the Pleadings", Case No. 15 C CG 03380, pages 9-10, 16. (OP_CAF3_3-6)

Agency Response: CARB rejects the commenter's proposal to include a provision to allow the continued use of Executive Orders approved prior to adoption of the proposed ADF amendments. To support the proposed modification to the amendments, the commenter quotes CARB statements made prior to the confirmatory testing conducted in 2019. CARB's confirmatory testing conducted in 2019 found that additives with existing Executive Orders, including various certified VESTA formulations, did not mitigate biodiesel NOx emissions to the level of Reference CARB Diesel. Therefore, any legacy exemptions of certification requirements for previously issued Executive Orders could result in future unmitigated biodiesel NOx emissions, directly contrary to the primary policy purpose of the ADF regulation and these amendments.

E-4. *Extend Timeframe for Currently Certified Additives to be Used*

Comment: Permit continued sale of currently certified formulations pending completion of the suggested round-robin testing. (B_CABA1_B2-7)

Agency Response: CARB rejects the suggestion to permit the continued sale of currently certified formulations pending completion of the suggested round-robin testing, because the suggested approach may result in continued statewide NOx emissions associated the use of biodiesel blends that include ineffective additives. As discussed in the staff report,[44] CARB directed emissions testing of existing biodiesel additive formulations and has found some formulations to be ineffective or insufficiently effective at mitigating NOx

[44] See page 3 of "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels, Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.142177842.1277515527.1593467990-211680084.1591108534.

increases per the results of those tests. Previous testing directed by CARB and others show that biodiesel can increase NOx under certain and limited circumstances. The finding from recent CARB-directed testing[45] that existing biodiesel additive formulations are ineffective or insufficiently effective is broadly consistent with the results of earlier studies of biodiesel additives on NOx emissions.[46] The proposed amendments ensure that all products on the market will be uniformly tested and certified under strengthened procedures in order to avoid the continued use of potentially ineffective additives. Please see response D-9 in this chapter and response D-2 in Chapter IV regarding extension of the date after which only biodiesel additives or ADF formulations approved or certified under the proposed amendments can be used to comply with biodiesel in-use requirements.

F. Economic Analysis

F-1. *Costs, Logistics and Feasibility*

Comment:

3. Slide 18 – CARB's proposed updated certification program would cost ~$350k, potentially more. Give the narrow window of opportunity between 2021 and the ADF's estimated sunset (2023), a net positive return on investment is questionable given the variables outside of an applicant's control (namely, further regulation changes that could negatively impact NOx mitigant requirements).

    a. Question: Will CARB be addressing the newly proposed ADF testing costs and associated payback in it ISOR? CARB should take into consideration that this process will necessarily increase ADF NOx mitigant costs to the consumers. (OP_CAF1_1-6)

Comment: Appendix C of the staff report further states "[t]he proposed amendments require three testing cycles for certification testing. Estimated cost of completing a

[45] See "Confirmatory and Efficacy Testing of Additive-Based Alternative Diesel Fuel Formulations." Durbin, et al. March (2020). Available at: https://ww2.arb.ca.gov/sites/default/files/2020-03/ADF_BD_Additive_Testing_Report_March2020.pdf

[46] See "CARB B20 Biodiesel Preliminary and Certification Testing." Durbin, et al. July (2013). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20140630carb_b20_%20additive_study.pdf?_ga=2.223680735.515147789.1572476259-1811565499.1498254338 and "CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California - "Biodiesel Characterization and NOx Mitigation Study."" Durbin, et al. October (2011). Available at: https://ww3.arb.ca.gov/fuels/diesel/altdiesel/20111013_carb%20final%20biodiesel%20report.pdf

certification testing is $525,000 ($175,000/cycle x 3 cycles)." We believe this section requires clarification. The $525,000 CARB estimate is a floor, or the minimum testing investment required simply for retesting previously approved mitigants. Before CARB's estimates can be confirmed, we need to have CARB's opinion on the CE-CERT repeatability and reproducibility issues and whether they plan to incorporate a "tolerance" into the new ADF. Only then can we comment on CARB's estimates. If, however, CARB switch to the Cummins engine and the ADF moves forward as proposed, requiring a new research and development program, costs will be significantly higher, potentially 2X CARB's estimates, either decreasing competition by dissuading research and development or increasing the cost of NOx Mitigants, either of which will drive up the cost of B100 and any other blends above the seasonal allowances. (OP_CAF3_3-5)

Comment: The Economical [*sic*] 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 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. (OP_EMA1_4-5)

Comment:

1) Economically unviable and logistically unworkable

   A significant percentage of our fuel sales are additized at our facility, prior to delivery to small fuel distributors and truck stops. So far this year, we have seen a steady month-over-month increase in additIzed [*sic*] fuel sales, and expect that trend to continue. To continue selling additized fuel to these customers, practically speaking, would require one of two scenarios. First, a tanker partially loaded with RD would arrive at our facility and then additized biodiesel would be splash blended in the tanker, thus creating the exact blending ratio required. This will require significant additional fuel transportation distance (and associated emissions/cost) and would drastically increase truck traffic in our facility, necessitating expenditure on expanded

load out capabilities. Second option would be that the customer would need to install additional storage tanks and blending equipment at their facility. Customers will not be willing or able to pursue this option. (B_IWP1_B1-2)

Comment:

(4) The Staff Report's Technical Feasibility and Impacts Analyses Do Not Capture or Accurately Reflect the Impacts from the Proposed Amendments.

As noted, the Staff Report's economic impacts analysis is less than one page long. The meager analysis looked solely at increased costs to three biodiesel additives producers to conduct the extensive changes being proposed as part of the new 2-lab certification process. Even assuming for the sake of argument that those costs are accurate for additives suppliers, the analysis falls far short of a complete evaluation of the regulatory impacts from the proposed amendments.

For example, there was no attempt to estimate certification costs for biodiesel producers to certify non-additive based ADF formulations at less than the 75%/20% renewable diesel and biodiesel blend that is proposed as a compliant formulation. In other words, with the proposed language as written, every biodiesel formulator that is looking to sell a compliant formulation containing more than 10% biodiesel[26] and less than 75% renewable diesel would need to undertake the $525,000 certification procedure for each such formulation.

There are currently about 40 unique entities with about 120 certified biodiesel fuel pathways in the LCFS program.[27] Therefore, if each of those 40 companies needs to certify just one of their formulations, the total cost impacts on just the biodiesel producers would be $21 million, not the mere $1.6 million shown in the staff analysis.

[26] The seasonal allowances for B10 in the current regulation would carry over under the amendments. See title 13, CCR, section 2293.6(a)(1)(A), Appendix A, p. A-2.

[27] LCFS Current Fuel Pathways, https://ww3.arb.ca.gov/fuels/lcfs/fuelpathways/current-pathways_all.xlsx, accessed April 8, 2020.

(B_NBB1_B7-11)

Comment: The lab costs, while they were, I think, indicated by staff as negligible are very high. (T_REG2_T2-4)

Comment: Costing upwards of $500,000, the economic impact of certifying such biodiesel formulations and/or additives would severely impact our members, which are already operate on a small profit margin. This two-lab certification process doubles the cost of certification essentializing -- essentially penalizing our clean fuel industry.

If the proposed amendments are approved as is, the California biomass based diesel

industry will face devastating consequences that are only exacerbated by the current implications of COVID-19. As laid out by national biodiesel board and specified by our members' companies, this could cause lasting impacts on our already suffering industry. (T_CABA3_T6-5)

Comment: I'm addressing the Board this morning to reconsider the proposed ADF changes in regards to retesting. CARB has indicated they do not expect the new amendments to lead to the elimination of existing businesses, but that's simply not true. We will go out of business if we do not retest.

Thanks to CARB, changing the sunset provisions to not expire in 2023 how can we justify spending half a million dollars when we only have two years to recoup our investments. We've already spent hundreds of thousands of dollars to certify our VESTA NOx mitigants. It's a losing proposition for us and will single-handedly put us out of business.

…

In the midst of this crisis, one can see how it may be difficult for a small business, such as ourselves, to retest products that have already been [*sic*] proven their legitimacy. (T_CAF4_T7-1)

Comment: Staff made a presentation before we spoke and mentioned that these ADF amendments would have limited negative effect to biodiesel producers. This is absolutely false. My company, New Leaf, will be dramatically affected by this. More than 50 percent of our production is sold to companies who blend biodiesel to B20. And this regulation would require us to buy renewable diesel in order to continue to sell to those customers. This is not something that we can do.

We do not have the buying power to buy renewable diesel and blend it at a high ratio with every gallon of fuel we produce. There are only a handful of RD suppliers and one very small one in California. The largest in the world is in Singapore, and the expressly forbid biodiesel to be blended with renewable diesel for business reasons.

So we are left with only a couple other producers that frankly won't take my phone call. (T_NL2_T10-2)

Comment: The changes that are proposed to the ADF Regulation in normal circumstances would have serious and lasting damage to IWP's ability to continue to supply clean low carbon fuel to California.

…

The added expense to the testing procedure laid out in the amendments is not feasible for a company like IWP. If we were unable to source the NOx additive

needed to blend at B20, IWP would be losing, in normal circumstances, 30 percent of its normal business.

…

The use of renewable diesel blended with biodiesel is going to be an integral part to reaching the bold goals for the CI reduction in California, but it is also my belief that growing carbon markets throughout the country will have a consequence on the amount of that renewable diesel that is going to be imported into California.

IWP would be facing immense challenges in sourcing and the infrastructure needed to blend the amount of renewable diesel needed for the ratios proposed. Similar to what Jennifer had stated, these infrastructure would be a real problem for us. (T_IWP2_T11-1)

Comment:

3) High cost of certification

The 2-lab certification process for an alternative blend level would cost in excess of half a million dollars and would simply be out of reach for a producer of our size.

In conclusion, the proposed amendments would severely curtail demand by imposing unnecessarily rigged constraints on the biodiesel blend levels and the distribution system as it currently is structured. IWP has a long history of working constructively with CARB to further our shared goal of a reducing emissions. I sincerely hope CARB will reassess the regulation taking into full account the potentially devastating impact it may have on the industry and in turn on the attainability of the 2030 reduction goals. (B_IWP1_B1-5)

Agency Response: Government Code sections 11346.2, 11346.3, 11346.5 and Health and Safety Code section 57005 establish requirements for assessing a proposed regulation's estimated economic impact.[47] The economic impact assessment includes estimated costs and benefits of the proposed regulation. The economic impact assessment must identify types of business affected by the proposed regulation, businesses and jobs created or eliminated and the potential cost of compliance of the proposed regulation for businesses and individuals. The assessment also requires agencies to discuss the benefits of the regulation, including, but not limited to, benefits to the health, safety, and welfare of California residents, worker safety, and the state's environment and quality of life, among any other benefits identified by the agency. The

[47] "ECONOMIC IMPACT STATEMENT – 6603." Department of General Services. June (2014). https://www.dgs.ca.gov/Resources/SAM/TOC/6000/6603. Accessed December 18, 2020.

economic impact assessment was conducted consistent with the requirements of the Government Code sections referenced above, incorporating an assumption, based on current market participation, that there would be potentially up to three business entities that may be interested in certifying pursuant to the amended certification requirements.

As provided in the staff report, the estimated cost to the industry is approximately $1.6 million.[48] If the cost of certification is fully passed on in biodiesel prices over a two-year period, this would result in an estimated increase of 0.29 cents per gallon of biodiesel (100 percent biodiesel or B100) in 2021 Q2 to 2022 Q4. Since B100 may be blended with diesel up to 20 percent (B20), a gallon of B20 will see an estimated increase of 0.06 cents per gallon or one fifth of the 0.29 cents per gallon estimated increase associated with B100.

Staff also considered a scenario where biodiesel producers and importers blend additional renewable diesel for NOx mitigation of biodiesel blends above the NOx control level. Most producers and importers are already equipped to facilitate storage and blending of fuels, and that same equipment may be able to be transitioned to renewable diesel storage and blending. Therefore, staff concluded that blending of additional renewable diesel may pose logistical challenges, but would likely not increase costs, for most producers and importers. Furthermore, any potential cost increases related to storage and blending equipment would likely be less than cost increases associated with certification of additives, as described above.

Please also see response C-3 in this chapter regarding renewable diesel availability and response F-2 in this chapter regarding potential constraints on biodiesel use.

F-2. *Impacts to LCFS*

Comment: In closing, if CARB nullifies all EO's and no additional/new EO's are granted, in 2021 approximately 25% of the biodiesel market will vanish. More than 50 million gallons of biodiesel may not find a home in the marketplace, representing some 500,000 LCFS credits. Such a loss will negatively impact the bank, raise credit prices further (which are currently at an all-time high) and potentially increase consumer pricing. (OP_CAF3_3-7)

Comment: And since biodiesel is responsible for about 20% of LCFS credits, this limitation will severely impact the success of the LCFS. (B_EBR1_B3-4)

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[48] See "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels, Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.142177842.1277515527.1593467990-211680084.1591108534.

Comment: It is important to note that biomass-based diesel generated over 46 percent of the LCFS carbon reductions and credits in 2018, and over 41 percent of the credits during the life of the LCFS to date. CARB should encourage - and not unnecessarily burden - biomass-based diesel fuels that are critical to CARB's climate and air quality program goals.

The ability for California to achieve its carbon reduction goals will be impaired if availability of lower CI fuels is artificially limited in the future. If rushed into implementation, this proposal could have the unintended but very real consequence of deepening the compliance deficit expected in the later years of the program before widespread electrification can become a reality. Proposals that could put the long-term success of the LCFS at risk require greater scrutiny, more thorough review and a higher level of analysis before adoption.

…

Delaying immediate action in favor of a more robust process does no harm to the LCFS program, California businesses or, more importantly, California citizens. However, if our concerns prove correct, the damage to the program could be significant. Artificially limiting lower CI fuels and effectively deepening the compliance deficit at a time when the coronavirus pandemic has affected the California economy through crashed energy prices, damaged private capital, business closures and individuals out of work at levels rivalling the Great Depression, is not an appropriate step for the program. (B_REG1_B4-4)

Comment: Since biodiesel and renewable diesel[1] play a critical role in the success of the LCFS, it is imperative that the ADF regulation be enhanced without adversely affecting the sale and use of biodiesel and renewable diesel in California. We have discussed the issues below with CARB staff and provide these comments and suggestions for the Board's consideration in the spirit of improving the proposed amendments and current regulation while maintaining a robust and sustainable market for these important petroleum diesel substitutes.

[1] Biodiesel and renewable diesel are made from the same organic feedstocks but through different processes. Biodiesel is produced through a catalyzed reaction with alcohol in a process called transesterification, while renewable diesel is produced through more energy-intensive hydrotreating of the feedstock in what is essentially the same process used to make conventional petroleum diesel.

Biodiesel and Renewable Diesel Are the Key Fuels Critical to California, Providing Nearly Half of All LCFS Greenhouse Gas Reductions.

Biodiesel (BD) and renewable diesel (RD) (collectively "biomass-based diesel" or BMBD) continue to perform well under the LCFS, notwithstanding the strict regulatory requirements and challenges that biodiesel has faced since the program began in 2011. Biomass-based diesel volumes have increased from a mere 14 million gallons in 2011 to over 800 million gallons in 2019[2] and are expected to reach 1 billion gallons by the end of 2020. These high-performing diesel replacements have transitioned from modest credit generators to mainstays of the program, accounting for over 46 percent of LCFS credits in 2018. As such, biomass-based diesel fuels have provided the lion's share of the LCFS credits to date (cumulatively 41% of all credits generated since 2011) and have therefore been a key contributor to the LCFS' success. Biomass-based diesel fuels have displaced so much petroleum diesel in eight years that biodiesel and renewable diesel now comprise about 20% of each gallon of diesel fuel used in California.

[2] Comments by Jim Duffy, California Advanced Biofuels Alliance conference, February 2020.

The credits generated by biomass-based diesel fuels have, to a large degree, enabled the LCFS to overcome the challenges in meeting the gasoline compliance standards due to the fact that cellulosic ethanol production never materialized as expected. And given the expected gradual penetration of electrified vehicles in the medium- and heavy-duty sectors, the LCFS will continue to rely on biomass-based diesel fuels for many years to provide the high energy-density fuels that freight transportation and other heavy-duty engine applications require.

Indeed, the University of California, Davis, Institute of Transportation Studies (ITS) recently published a study that recognizes the critical role biomass-based diesel has played and will continue to play in achieving the Board's 2030 climate and LCFS objectives. The study's modeling showed BMBD playing the key role, more than any other fuel, in reaching the LCFS target of 20% carbon intensity reduction by 2030. In nearly all the scenarios that ITS modeled, up to 60-80% of the diesel pool would need to be biodiesel and renewable diesel in order for the Board to achieve its own 20% CI reduction target by 2030.[3]

[3] Bushnell, James et al., "Uncertainty, Innovation, and Infrastructure Credits: Outlook for the Low Carbon Fuel Standard Through 2030," Feb. 2020, Executive Summary at v, https://arefiles.ucdavis.edu/uploads/filer_public/f7/2a/f72a8b2d-856c-4881-9226-a854b4de6a14/bushnell_mazzone_smith_witcover.pdf, accessed March 27, 2020.

(B_NBB1_B7-2)

Comment: The proposed amendments have the potential to eliminate a large portion of biomass-based diesel volumes, which would adversely affect the viability of the LCFS program. (B_NBB1_B7-4)

Comment: And since biodiesel is responsible for about 20 percent of the LCFS credits generated, this limitation will severely impact the success of the LCFS Program. It'd [*sic*] really just simple math. (T_CABA2_T4-5)

Comment: The proposed amendments pose a potential threat to the success of the industry and thus the success of the LCFS. (T_CABA3_T6-2)

Comment: Without our input, you're going to kill us, and in turn, severely harm the LCFS program, which currently gets 20 percent of its credit generation from biodiesel. (T_NL2_T10-7)

> **Agency Response:** As described in the first 15-day change notice,[49] staff proposed an R55 B20 approved ADF formulation to provide an additional compliance option for persons subject to in-use requirements for biodiesel use above the NOx control level (usually B5). This proposed modification addresses stakeholder comments that the R75 B20 approved ADF formulation could restrict the use of biodiesel in California due to insufficient renewable diesel availability. Staff's proposed amendments to the ADF regulation will also allow producers of ADF additives and formulations, including owners of previously certified additives and formulations, to certify their additives and ADF formulations consistent with the requirements of the amended regulation.
>
> The ADF regulation contains additional compliance options to meet the NOx control requirements, including an approved additive (di-tert-butyl peroxide (DTBP)) and exemptions for entities that primarily operate using or selling fuel for use in New Technology Diesel Engines that do not experience NOx increases with biodiesel use. These compliance options will continue to be available after the proposed modifications become effective.[50]
>
> Based on the range of options for continued use of biodiesel blends above the NOx control level, staff does not anticipate that the biodiesel market, renewable diesel market, or the LCFS program will be adversely impacted by the proposed amendments, staff does however anticipate that air quality will be improved.

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[49] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels." CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf.

[50] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels - Attachment B, Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions." CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15dayattb.pdf.

F-3. *General Economic Impacts*

Comment: 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.

…

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. (OP_EMA1_4-7)

Comment: The costs associated with the proposed amendments are exacerbated by the impacts of COVID-19 and current state of the California BMBD industry. The past weeks have proven difficult across most economic sectors, but especially difficult for the state's BMBD industry. As most of the feedstock used in the state is waste oils from the restaurant industry, such as used cooking oil (UCO) and animal tallow, viable feedstock for the low-carbon fuels produced in-state is virtually unavailable. While the long-term effects are still unknown, UCO collection for California biodiesel plants is down roughly 50-70%. The UCO that is collected is expensive and poor quality, resulting in poor yields and slow production. The lack of feedstock has resulted in a decline in production, with plants running at 65-70% capacity. If the amendments are passed as is, California's BMBD industry could face devasting [*sic*] consequences. (B_CABA1_B2-2)

Comment: Nowhere in CARB's meager 1-page economic impacts analysis for this rulemaking is there any mention, let alone substantive analysis, of the economic impacts that would be incurred in association with efforts to go beyond NOx neutrality and seek to further reduce NOx levels beyond those achieved with the current CARB diesel specifications. (B_NBB1_B7-6)

Comment: The proposed changes will be harmful to the biodiesel industry and to my company, especially given the turmoil and deep uncertainty we are experiencing in the biodiesel market due to the COVID-19 Pandemic. Simply put, biodiesel producers like us are struggling to keep our plants open and remain solvent. As oil and fuel prices have plunged, we have simultaneously seen the supply of low carbon feedstock rapidly contract, the prices of these raw materials increase, and fuel demand contract. These factors have caused many biodiesel plants, including ours, to reduce production significantly, which means California will see a reduction in the air quality and environmental benefits delivered by biodiesel (i.e. reductions in diesel particulate matter, carbon monoxide, and polycyclic aromatic hydrocarbons, and greenhouse gas emissions). (B_CRE2_B8-1)

Comment: Staff's analysis also fails to recognize that the proposed ADF changes will negatively impact the use of biodiesel in certain blends, by as much as 30 percent.

Should Biodiesel use go down, so will LCFS credit generations, which means increased costs to consumers yet again.

Ethanol manufacturers are already shutting down plants, and the industry, as a whole, is reporting losses of $10 billion. Now is not the time to place undue burden on biodiesel stakeholders. Now is not the time to subject our citizens to increased fuel costs. And now is not the time to wipe out biodiesel's favorable impact on the environment.

The world has completely changed in the last two months, and respectfully, the Board should ask CARB to revisit its proposed amendments in consideration of the ongoing pandemic and its economic impact on small businesses and California citizens. (T_CAF4_T7-3)

Comment: I'd like to start by saying the proposed changes are going to be harmful to the biodiesel industry and to my company, especially given the turmoil and deep uncertainty we are experiencing in the biodiesel market due to the COVID-19 crisis.

Simply put, biodiesel producers like us are struggling to keep our plants open. As oil and fuel prices have plunged, we have simultaneously seen the supply of low carbon feedstocks rapidly contract. The prices of these raw materials have increased and fuel demand has also contracted.

These factors have caused many biodiesel plants, including mine, to reduce production significantly, which means California will see a reduction in the air quality and environmental benefits delivered by biodiesel, such as reductions in diesel particulate matter, carbon monoxide, PAH, and greenhouse gas emissions. (T_CRE3_T9-2)

> **Agency Response:** The economic analysis of the proposed amendments conducted by staff in preparation of the staff report met the requirements of Government Code sections 11346.2(b)(2) and 11346.3(b), which require the preparation of an economic impact assessment for a non-major regulation. The Government Code does not require, and CARB typically does not conduct, a cumulative analysis of economic impacts for a non-major regulation. CARB's final economic impact assessment estimated a potential cost increase of up to 0.06 cents per gallon of B20 in 2021 and 2022 to certify additional additives in accordance with the amended certification requirements as a result of the proposed amendments. This potential cost increase is very small relative to the cost of a gallon of B20 and diesel fuel (approximately $2.80 per gallon B20 and $2.98 per gallon of diesel).[51]

[51] See "Clean Cities Alternative Fuel Price Report. January (2019). Available at: https://afdc.energy.gov/files/u/publication/alternative_fuel_price_report_jan_2019.pdf. Accessed February 16, 2021.

As discussed in the first 15-day change notice, following Board direction to address "the blending issue," staff proposed changes to the amendments to allow a second approved ADF formulation with a lower renewable diesel content (i.e., R55 B20). This proposed modification also addresses stakeholder comments that the R75 B20 approved ADF formulation requires more renewable diesel than is needed to ensure NOx equivalence, as well as stakeholder comments that the R75 B20 formulation could artificially restrict the use of biodiesel in California due to insufficient renewable diesel availability. Please also see response to comment C-2 in this chapter regarding NOx neutrality of the proposed amendments, response to comment C-3 in this chapter regarding fuel availability and response to comment F-2 in this chapter regarding impacts to the LCFS program.

G. Confirmation Testing

G-1. *Repeatability and Reproducibility*

Comment: 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. (OP_EMA1_4-6)

Comment: CARB's documented "reproducibility" concerns seem to be the underlying motivation to modify the Alternative Diesel Fuel (ADF) Regulation's testing requirements as evidenced in CARB's December 13, 2019 presentation[1], slide 8, which says that CARB "seek to reinforce the certification test procedures" so that the "overall pass/fail results are more reproducible". CARB seems to be basing their "reproducibility" concerns on their recent CE-CERT ADF NOx mitigant verification testing program, the associated results and are now focused on implementing a more robust process capable of reproducing engine emission test results across different fuels and different test facilities.

[1] https://ww2.arb.ca. gov/sites/default/files/2019-12/ADF_Workshop_Presentallon_12-13-19.pdf

…

[T]here are additional factors which CARB should consider prior to modifying the current ADF's testing requirements. For example, CE-CERT's engine emissions results' repeatability is two (2) times higher than other engine to engine reproducibility which we can only technically reconcile by questioning CE-CERT's engine process control procedures.

...

- Why did the CE-CERT process go out of control is a question that hasn't been answered, but needs to be understood because the basis for CARB's wholesale ADF testing requirement changes are based on faulty data. The recent CE-CERT data is flawed and yet CARB is seeking to rely on such justification to overhaul the ADF's already robust testing requirements.

- The repeatability issues identified raise significant concerns as to whether the CE-CERT data should be relied upon in CARB's rulemaking process. If CARB excluded the CE-CERT data from its analysis, would they be proposing the same changes and if so why and based on what?

- When evaluating the CE-CERT emissions test results, CARB should have, given the ramifications of its findings as first communicated in the Product Alert[2] and then again at its December 13, 2019 workshop, considered the above noted information when making board conclusive public statements about VESTA®. CARB chose to place more confidence in the CE-CERT NOx emissions data than that of SwRI. We don't understand why; CARB should answer this question.
  [2] https://ww2.arb.ca.gov/resources/documents/alternative-diesel-fuels-product-alert-fuel-additives

- At the same workshop, CARB stated that "Staff is concerned that the UCR [CE-CERT] additive test program results did not align with certification test program results", that "[a]ll tested additives failed statistical tests" and that "VESTA additives showed partial NOx mitigation"[1]. All these statements are misleading and inaccurate. If CARB had conducted a thorough statistical analysis of the CE-CERT emissions' results, CARB would have considered repeatability and reproducibility but did neither. The statistical analysis CARB conducted was a t-test, as required by the ADF, but isn't a rigorous enough statistically in the context of a two-facility different fuels comparison.

- At the same workshop, CARB also stated their "[t]est was conducted using a Federal Test Procedure (FTP) heavy-duty transient cycle and Alternative 1 (RCCR), which requires more fuel changes but gives more statistical reproducibility". We cannot reconcile this statement with the actual CE-CERT data. It's abundantly clear that CE-CERT (a) struggled with the fuel changes which impacted the accuracy of their results and (b) produced data that has far worse repeatability than SwRI's both of which call into question CARB's view on Alternative 1. We would appreciate if CARB could clarify what they mean by "reproducibility" in the context of their differing views.

…

Summary

- There is a clear disconnect between literature reproducibility (~2%) and CE-CERT's repeatability (as high as 4%). SwRI's repeatability seems more in line with expectations (~2%). The disconnect is that CE-CERT's repeatability is two times the reproducibility documented in the literature.

- We could find no evidentiary support documenting reproducibility of ADF type emissions testing on the same fuels, tested at different facilities using S60's.

- CARB's two facility, two fuel approach, in order to neutralize "reproducibility" concerns, seems unsubstantiated, questionable at best, given the variable nature of emissions testing.

- **Prior to implementing the ADF proposed sweeping test changes, we believe CARB should conduct an independent statistical analysis of the ADF testing data they have in hand versus the data they used in comparison to determine the best possible path forward. Given what's been presented, there are clearly gaps in knowledge and differing views.**

…

As further advancements are made on these efforts and modification to the ADF's chain of custody, verification and observation, etc. are implemented, CARB can take more time to further investigate the issue of engine emissions "reproducibility" which appears to be far more complex than originally estimated. (OP_CAF1_1-1)

Agency Response: The proposed amendments address testing repeatability and reproducibility as demonstrated by CARB and CE-CERT's statistical analysis of the results from both the certification and confirmatory testing.

Regarding reproducibility, please refer to response D-1 in this chapter regarding two laboratory testing.

Test-to-test repeatability on a single engine and engine-to-engine reproducibility are unrelated statistical measures. Therefore, commenter OP_CAF1_1-1's comparisons of the CE-CERT, SwRI, and literature findings regarding reproducibility and repeatability are not valid.

The test programs from the papers that commenter OP_CAF1_1-1 cited did not test California diesel fuels and were not designed to determine reproducibility or repeatability as applicable to these proposed amendments. However, the emissions results from commenter OP_CAF1_1-1's cited papers do support CARB's confirmatory testing findings with respect to the increase in NOx emissions caused by biodiesel blends and the ineffectiveness of 2-EHN and the

effectiveness of DTBP in mitigating NOx emissions. The commenter is using examples of engine-to-engine variability of emissions response in DDC Series 60 engines to support the findings of VESTA® certification testing, which showed similar engine-to-engine variability in emissions response with the CARB CE-CERT confirmation testing. The engine-to-engine variability also supports staff's proposal for requiring two engine certification testing using the proposed certification procedures. Therefore, two engine testing will allow a confident determination of the additive or formulation's ability to effectively control NOx emissions.

Fuels selected for confirmatory testing met the specifications for Reference CARB Diesel and Biodiesel Additive Certification Fuel as set forth in Appendix 1 of the ADF Regulation. Before any confirmatory testing was performed, the Reference CARB Diesel and unadditized B20 blend were tested to confirm that the specific (grams per brake horsepower-hour) and relative (percent difference) emissions were typical for the test engine and the test fuels.

For more than ten years, CARB staff has managed diesel-engine and diesel-vehicle emission test programs performed by UCR CE-CERT. Test program advisory organizations have included Engine Manufacturers Association (EMA), California Trucking Association (CTA), and United States Environmental Protection Agency (U.S. EPA). There is no evidence or indication of poor performance of the staff or test facility in conducting the confirmatory testing. All required test procedures were followed. The commenter's claim of improper fuel switching procedures is not supported by the evidence and incorrect. The fuel line was flushed with new fuel at the beginning of fuel switches and the engine was conditioned (operated) with the new fuel before the test cycle was performed according to standard protocol. Inadequate fuel flushing would cause emissions differences between reference and candidate fuels to be smaller, not larger.

The results are consistent with previous findings regarding the NOx emission increase associated with twenty-percent biodiesel blends with California diesel fuel and the performance of the additive formulations that were tested. CARB staff agree that the results from the confirmatory testing are not consistent with the certification test results. Following up on this inconsistency, staff proposed the current amendments to the certification testing requirements, which require all biodiesel additives and ADF formulations, except for the approved additive DTBP and renewable diesel/biodiesel formulations, to be certified according to these updated procedures to prevent potential NOx emission increases due to the use of B20 in California.

As required by Appendix 1, section (a)(2)(F)(4) of the existing ADF regulations, "All tests conducted in accordance with the test schedule, other than any tests rejected in accordance with an outlier identification and exclusion procedure

included in the approved test protocol, shall be included in the comparison of emissions pursuant to (a)(2)(G) of this appendix." In making the emission-equivalency determinations, all valid data must be included. Greater variability in the emission test data increases the repeatability and the standard deviation and makes it more difficult to pass the equivalence determination. Even for a perfect test program in which the repeatabilities and standard deviations were zero for both candidate fuel and reference fuel tests, only a one-percent increase in candidate-fuel average NOx emissions compared to reference-fuel average NOx emissions would be allowed.

The commenter is using an arbitrary, nonstandard approach to evaluating test data repeatability. CARB staff has determined the 95th percentile of the difference between test pairs for the candidate fuel emissions and reference fuel emissions for three certification test programs conducted at SwRI and the corresponding confirmatory test program conducted at UCR.

This approach is consistent with the ASTM definition of repeatability limit. The repeatability limit is the value below which the absolute difference between two individual test results obtained under repeatability conditions may be expected to occur with a probability of approximately 0.95 (95 percent). The relative repeatability limits for each test fuel in each test program are shown tabulated below as percent of average emissions with that test fuel in that test program.

Repeatability Limits Based on 95th Percentile of Difference Between Test Pairs (Relative to Average Emissions with Test Fuel)						
EO G-714-*	ADF01	ADF05A	ADF07	ADF01	ADF05A	ADF07
Test Fuel	Certification Tests at SwRI			Confirmatory Tests at UCR		
Reference	3.49 %	0.92 %	1.47 %	1.85 %	1.92 %	2.53 %
Candidate	3.61 %	1.07 %	0.87 %	2.30 %	1.61 %	2.23 %

*ADF01 is 3000 ppmv VESTA®, ADF05A is 20 ppmv BC-EC1c, and ADF07 is 1000 ppmv VESTA®.

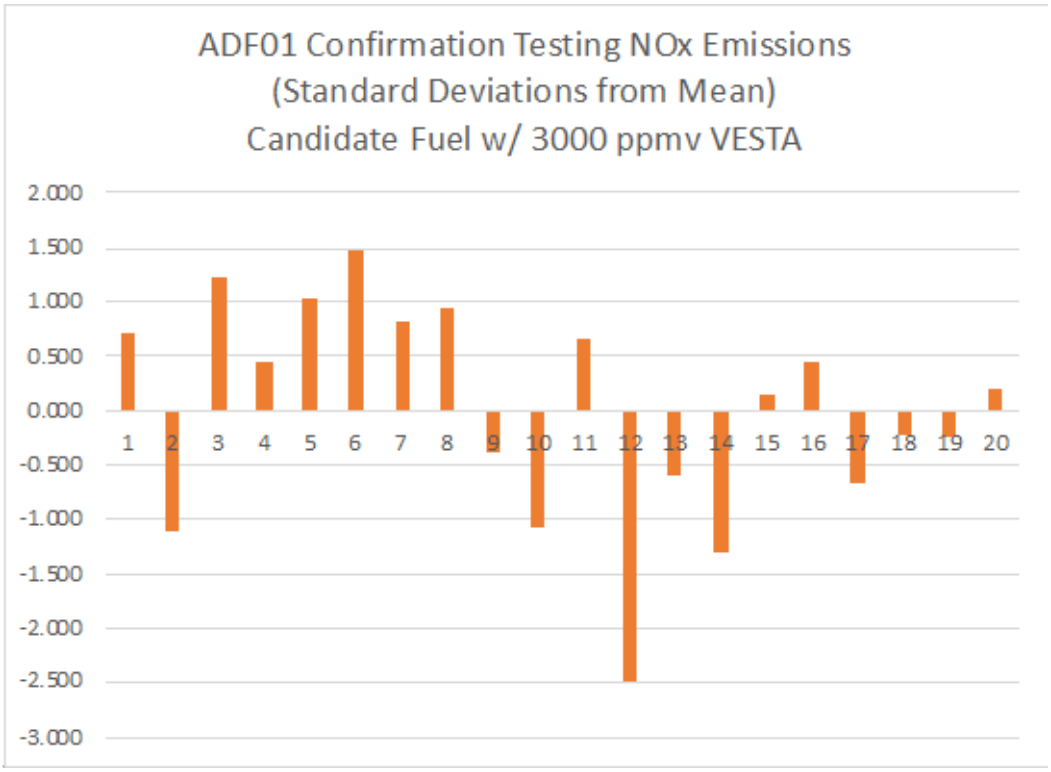
The repeatability of the certification tests was more variable than the repeatability of the confirmatory tests. The repeatability limits of the certification tests ranged from 0.87 percent to 3.61 percent, while the repeatability limits of the confirmatory tests ranged from 1.61 percent to 2.53 percent. For ADF01 testing, the repeatability was better (lower repeatability limits) in the confirmatory testing than in the certification testing. ADF01 performed the best for emission-equivalence in confirmatory testing, but did not pass. For comparison, we have also estimated the repeatability limits based on the standard deviation for each test program using the ASTM (E177) formula, $r \approx 1.96\sqrt{2}$ x (standard deviation). The ASTM formula, which was developed by and widely accepted by industry, provides another measure of the repeatability limit for each test program. The results relative to average

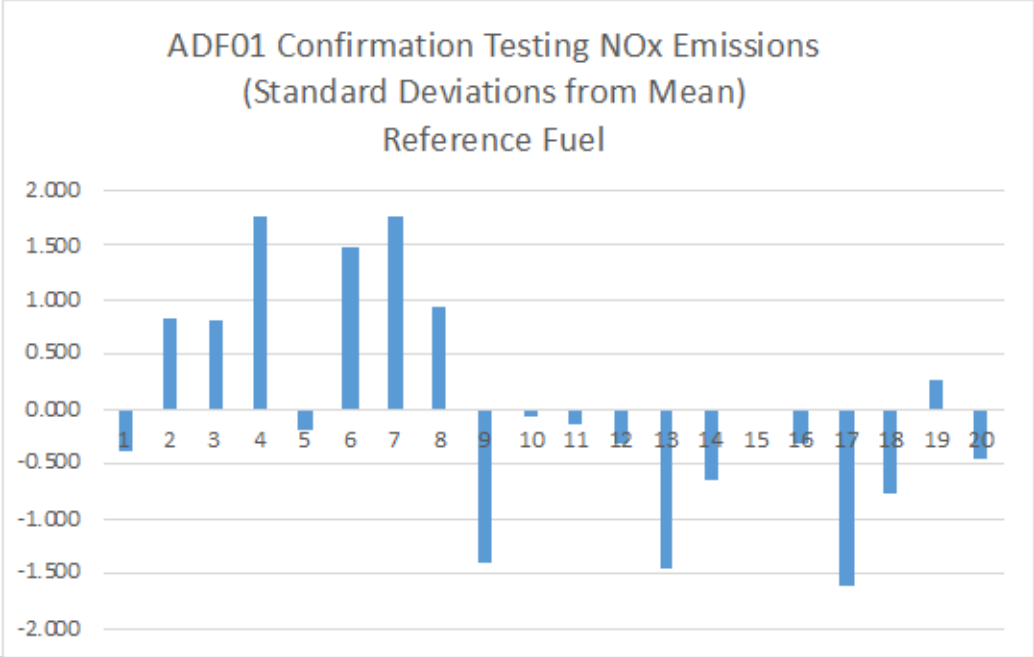
emissions are shown tabulated below and are very similar to the results shown above.

Repeatability Limits Estimated from Standard Deviations (Relative to Average Emissions with Test Fuel)						
EO G-714-*	ADF01	ADF05A	ADF07	ADF01	ADF05A	ADF07
Test Fuel	Certification Tests at SwRI			Confirmatory Tests at UCR		
Reference	3.84 %	0.91 %	1.63 %	2.01 %	1.89 %	2.55 %
Candidate	3.75 %	1.07 %	0.90 %	2.32 %	1.67 %	2.27 %

*ADF01 is 3000 ppmv VESTA®, ADF05A is 20 ppmv BC-EC1c, and ADF07 is 1000 ppmv VESTA®.

CARB staff also plotted ADF01 test data versus the number of standard deviations from the mean for the Candidate Fuel with 3000 ppmv VESTA and the Reference Fuel. As shown below, the greatest difference from the mean was about -2.5 standard deviations for one Candidate Fuel test. This contradicts the commenter's concern of an "out of control" Candidate Fuel test of greater than +3 standard deviations high. So, the commenter's concern that the Candidate Fuel emissions may be high is inaccurate. The summary chart below shows the absolute NOx emissions for the confirmatory testing of ADF01 for each of the tests performed on the Candidate Fuel and Reference Fuel. As shown, Candidate Fuel emissions were higher than Reference Fuel emissions for every back-to-back test pair in the test sequence.




ADF01 Confirmation Testing NOx Emissions
(Standard Deviations from Mean)
Reference Fuel
2.000
1.500
1.000
0.500
0.000
-0.500
-1.000
-1.500
-2.000
1
2
3
4
5
6
7
8
9
10
11
12
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16
17
18
19
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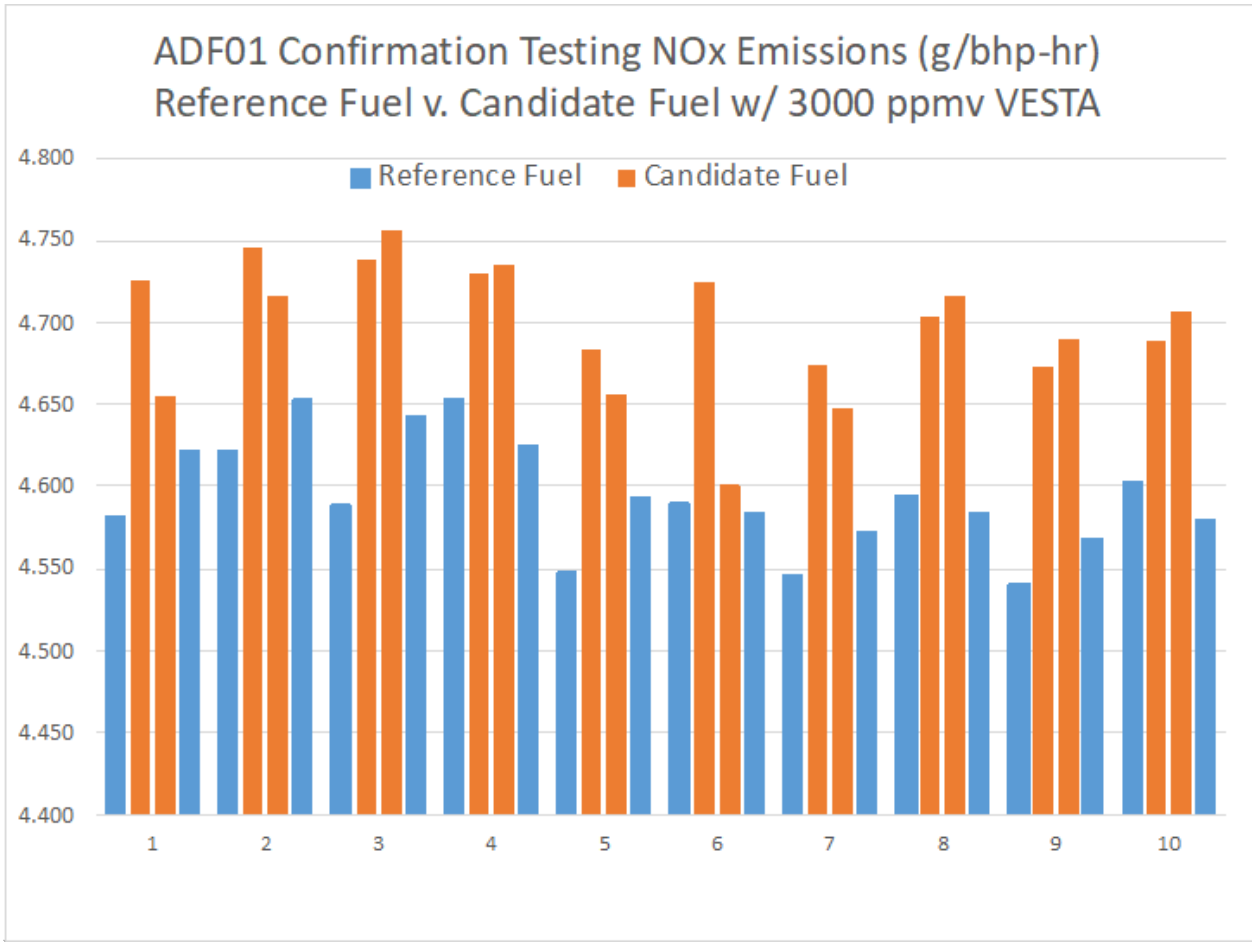

With respect to the B5/B10 test program that was performed for CARB, NOx mitigation is not required by biodiesel blends of up to five percent (B5) or biodiesel blends of up to ten percent (B10) if the biodiesel has a cetane number of 56 or greater. With respect to the effect of variable fuel properties and the NOx-emission increase due to biodiesel blends, the executive orders that certify biodiesel additive formulations require half as much additive for mitigating biodiesel blends if the biodiesel has a cetane number of 56 or greater.

G-2. *Confirmation Testing*

Comment: ***CARB has made numerous statements related to the meaning and/or significance of the testing performed at CE-CERT that do not meet scientific rigor and that do need appropriate clarification.***

...

Considering that discrepancies, concerns, and associated questions listed above are based upon limited knowledge (due to the additive manufacturer not being allowed to witness the testing of its additive or the facilities), imagine the breadth of improvement that was really necessary to meet the requirements of scientific rigor. (OP_BC1_6-3)

Comment: Additionally, we don't believe that the CE-CERT testing did prove that a certain manufactured additive does not work, and such statements are invalid. However, the CE-CERT testing wasn't able to confirm the efficacy. And we can understand extending time.

I question the latest person -- I didn't get their name, I'm sorry, discussing the CE-CERT testing on -- confidence in the CE-CERT testing. I'm not sure how testing with a reference fuel that does not meet the requirements of the ADF Regulation, meaning it doesn't account for any diesel fuel, or an assurance of the biodiesel not containing additives is an assurance of good testing.

And certainly, there's a lot of questions regarding the blending. As far as the actual engine testing, that's unknown, because the data is not out there really. (T_BC2_T13-2)

> **Agency Response:** The commenter does not make any specific objection or recommendation here to any specific amendment proposal. The testing performed at CE-CERT adequately supports this rulemaking, and the commenters objections to that testing, delivered here primarily as general innuendo, are unfounded. CARB's confirmatory testing conducted at CE-CERT followed the procedures for biodiesel additive certification testing provided in Section (a)(2) of Appendix 1 of Subarticle 2 of the ADF regulation and met scientific rigor. For more information and further details about the testing, including detailed blending diagrams and descriptions and comprehensive testing data, please refer to CE-CERT's final report.[52]
>
> Consistent with a reasonable intent to conduct an independent investigation, CARB did not invite the parties under investigation (i.e., the manufacturers of biodiesel additives) to review additive and product handling and blending protocols prior to testing, witness the testing, and/or review CE-CERT facilities.

[52] See "Confirmatory and Efficacy Testing of Additive-Based Alternative Diesel Fuel Formulation." Durbin, et al. March (2020). Available at: https://ww2.arb.ca.gov/sites/default/files/2020-03/ADF_BD_Additive_Testing_Report_March2020.pdf.

H. Public Process

H-1. *Process and Timing*

Comment: 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. (OP_EMA1_4-3)

Comment:

(5) The Process for Developing These Amendments Falls Far Short of the Board's Prior Practices

We understand the limitations the pandemic has had on the ability of CARB to engage with stakeholders. Even with this caveat, however, we found the rulemaking development process wholly inadequate and falling well short of the Board's historical standards for stakeholder engagement. As far reaching as these amendments are, we are highly disappointed in the lack of engagement with stakeholders that has taken place to date, despite our best efforts to discuss our concerns with policymakers at CARB. Despite the important implications these amendments will have on our industry and the LCFS, we have only succeeded in scheduling and holding one discussion with CARB since staff first posted concepts in December 2019.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with stakeholders through a public process to address concerns raised at the April 23, 2020 hearing and determine if additional conforming modifications to the regulation are appropriate. (B_NBB1_B7-12)

Comment: As an industry we have always been able to reach acceptable amendments with CARB staff, but we have found this regulation process to be rushed and with little input from stakeholders. While we oppose the ADF amendments in their current form, we believe that along with the NBB, we can come to an agreement with 15-day changes to the amendments and the related actions as follows (see also attachment I):

...

…

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with stakeholders through a public process to address concerns raised at the April 23, 2020 hearing and determine if additional conforming modifications to the regulation are appropriate. (B_CABA1_B2-3)

Comment: I also strongly agree with NBB in requesting a 15-day change in order to have time to work through several technical issues that would normally be managed during a regulatory process. (B_EBR1_B3-5)

Comment: But there's an unreasonable focus on moving this proposal quickly rather than doing it well. It's important that the time is taken to fully understand and appreciate the impact this will have on California producers, the disadvantaged communities they operate in, the good paying green jobs they create, the secondary and tertiary businesses and economic impact they have, or, in fact, the viability of the LCFS which is dependent on the more than 5 million credits that biomass-based diesel fuels will generate in California every year. (B_EBR1_B3-6)

Comment: Normally, these concerns would be raised within multiple levels of CARB staff prior to this stage. Unfortunately, the process used here falls far short of CARB's historic standards for fair and deliberative rulemakings. Important rulemakings typically involve one to three years of analysis and development, and address key issues with stakeholders; we have seen this in past amendment packages to the ADF, and this occurs prior to the start of the 45-day formal period leading to the Board hearing.

For this rulemaking, stakeholders received just over three months total, including the 45- day comment period. A three-month rulemaking appears more appropriate for an emergency rulemaking, and there is no emergency involved here. We are now in April with the Board considering this proposal; this means much of the process occurred as the pandemic took hold of California and the rest of the United States. That reason alone should slow Board action in this area.

Our collective goal should be to ensure that any rulemaking aligns with CARB's overall responsibility to improve air quality in California and its goal of encouraging significant carbon reductions in the transportation fuel supply,[*sic*] Directing staff to develop a 15-day change is the appropriate action today.

…

There is an excellent opportunity before the Board today to demonstrate thoughtful leadership and good stewardship of the LCFS program by directing staff to further

engage stakeholders and refine the proposal before the Board.

We again request that the Board direct staff to engage in a 15-day change to the proposal. (B_REG1_B4-5)

Comment: First by the pandemic, and now by this hastily scheduled meeting today that threatens to put a final nail in the coffin of small biodiesel producers. (B_NL1_B6-1)

Comment: We absolutely need more time to work on this. Please don't impose this regulation on us right now. Let us save our businesses and get through the pandemic and work with you on a regulation that we can actually survive. We all want the same thing here, and I'm sure your heart is in the right place. But the math, science and sales impacts are subject matters that require input and collaboration from all stakeholders. Without our input, you are going to kill us, and in turn, kill the LCFS program. (B_NL1_B6-5)

Comment: Need for More Time to Engage With Industry Representatives and Working Group

Finally, there simply has not been sufficient opportunity for the kind of industry engagement that has normally taken place, such as with the original ADF rulemaking or LCFS rulemakings. The COVID-19 Pandemic has clearly made meaningful engagement rather difficult in the past 6 weeks. Thus, we at Crimson urge the Board to support a 15-Day Change process to allow CARB staff enough time to properly engage with Industry representatives to work through the outstanding technical issues. (B_CRE2_B8-6)

Comment: REG is disappointed that we have to do this. We have never opposed a CARB rulemaking package or an amendment package. And this is the first time that we feel that we need to. And I'm personally sad that we have to do that today, but more time is needed to get this amendment right.

To be honest, we haven't been given enough time to adequately work with staff. The whole process has been three and a half to four months tops. That includes the 45-day comment period.

…

And so for that reason alone, we shouldn't be rushing forward and this is not an emergency rulemaking. (T_REG2_T2-1)

Comment: The prudent course for the Board to take is to request staff to undertake a 15-day change, to reengage stakeholders, and to ensure that we have a proper and efficient rulemaking. (T_REG2_T2-7)

Comment: I also strongly agree with NBB in their comments of coming here and requesting a 15-day change in order to have time to work through several technical issues that would normally be managed during a regulatory process. But there's an unreasonable focus on moving this proposal quickly rather than doing it well. It's important that the time is taken to fully understand and appreciate the impact this will have on California producers, the disadvantaged communities they operate in, the good paying green jobs they create, the secondary and tertiary business and economic impact they have, or, in fact, the viability of the LCFS, which is dependent on the more than five million credits that biomass-based diesel fuels will generate in California every year. (T_CABA2_T4-6)

Comment: However, today we are forced to register opposition to this proposal. From a procedural standpoint, this was planned to be a four-month regulatory process. That's probably doable, but certainly ambitious by any standard.

However, with the global pandemic, that was effectively reduced to a three-month process. We lost the highly important last month of the process. This meant that we were simply unable to engage staff in a meaningful dialogue on several technical issues that have major, major impacts on our industry. For this reason, we would like to request a 15-day change. (T_NBB2_T5-1)

Comment: While CARB historically has fair and deliberative rulemakings that take one to three days to flesh out, we feel like this time around the process has been far too quick, either due to COVID implications or other reasons.

We think it's important to take deliberative and collaborative process to develop this rulemaking, so we are requesting a 15-day change and have laid out our proposed amendments in our written comments. (T_CABA3_T6-1)

Comment: The Board should hit the pause button on any ADF changes until this investigation is completed. (T_CAF5_T8-2)

Comment: Even though we're one of the small players in this space, our employees have high wages, 401(k)s, free health insurance and a bunch of other benefits that make us a great place to work. But right now, all of that is being threatened, first by the pandemic and now by these hastily considered amendments that threaten to put a final nail in the coffin of small biodiesel producers. (T_NL2_T10-1)

Comment: We absolutely need more time to work on this. (T_NL2_T10-6)

Comment: Imperial Western Products has never opposed any regulation put forth by CARB. And we do not believe that these changes were intended to hurt the biodiesel industry. But I would ask the Board for the 15-day change expressed by both NBB, and the CAB -- CABA, and stakeholders to have a further dialogue with Industry

stakeholders on both the testing procedure for for NOx-mitigation additives and the blend ratio for renewable diesel to biodiesel. (T_IWP2_T11-2)

Agency Response: CARB's rulemaking process complied with the Administrative Procedure Act and other pertinent legal authorities. According to standard CARB practice and policy, ADF staff worked to provide early and full notice to interested stakeholders, and to solicit their feedback on the proposal. Following the initial product alert, issued on October 31, 2019, that put the market on notice that CARB intended to quickly initiate a process to propose these amendments, staff hosted a public workshop for stakeholder interaction on December 13, 2019, in advance of the 45-day comment period opening on January 7, 2020. That 45-day public comment period ended February 24, 2020. The proposed amendments were presented to the Board on April 23, 2020, where stakeholders were able to present their concerns to the Board directly. Throughout the regulatory process staff has also been available for questions, has met with individual stakeholders, and presented at industry conferences. These conferences included the California Advanced Biofuels Alliance (CABA) meeting on March 5, 2020 and the Oil Price Information Service (OPIS) meeting on November 18, 2021, to explain the proposed amendments and the results of the confirmatory testing.

In response to these comments and Board direction, staff continued to interact with interested stakeholders individually, and also hosted a workshop on June 4, 2020, to solicit informal public feedback on potential 15-day modifications. Staff released a 15-Day Notice with conforming modifications to the amendments proposed in response to these comments and Board direction.

Please also see response D-2 in chapter IV regarding the effective date for certification of biodiesel additives and ADF formulations.

I. Miscellaneous

I-1. *Interaction of Engines and Fuels*

Comment: 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. (OP_EMA1_4-1)

> **Agency Response:** CARB staff generally agree with commenter's general suggestion, and believe that the proposed amendments to the ADF regulation, as well as the underlying prior version of the ADF regulation, is structured based on recognition of the role that engines and fuels have on each other. For example, staff's emissions analysis in Attachment B of the 15-day notice recognizes the different NOx emissions impact of biodiesel and renewable diesel in engines with and without selective catalytic reduction control.[53] Please also see responses ADF-1 through ADF-6 in the 2015 Response to Comments on the Alternative Diesel Fuel Regulation.[54]

I-2. *Additive Cetane Improvers*

Comment:

v. "Subsection (a)(2)(H) Purpose The proposed amendments clarify that determination of emission equivalency for each emission test with each Diesel Test Fuel is required for certification by the Executive Officer and deletes"…except for an additive demonstrated by the applicant to have the sole effect of increasing cetane number." Rationale These amendments are necessary to implement new proposed requirements. The deletion is necessary because the exception for additives that have the sole effect of increasing cetane number is an unnecessary remnant of the California Diesel Fuel Regulations and should not apply to Alternative Diesel Fuels."

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[53] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels - Attachment B, Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions. CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf.

[54] See "Response to Comments on the Alternative Diesel Fuel Regulation." CARB. September 21 (2015). Available at: https://ww3.arb.ca.gov/regact/2015/adf2015/rtconadf.pdf.

a. ***It's well known that cetane improvers have a response curve that provides less cetane improvement as the treat rate is increased. The California Diesel Fuel Regulation required the following language (that is now being proposed for deletion) due to the varying efficacy of cetane improvers, and required a cetane number spec instead of a treat rate.***

b. ***How did CARB make the determination that "additives that have the sole effect of increasing cetane number is an unnecessary remnant".***

c. ***Did CARB obtain cetane number results on fuels that CARB determined to meet ADF NOx mitigation, such as DTBP?***

d. ***Has CARB tested B20 fuels that were produced from CARB diesel fuel that already contained high levels of cetane improver against those produced from CARB diesel with low levels of cetane improver, etc.?*** (OP_BC1_6-11)

Agency Response: As indicated in the staff report, the proposed deletion (i.e., removal of the phrase "…except for an additive demonstrated by the applicant to have the sole effect of increasing cetane number.") should not apply to Alternative Diesel Fuels, and was corrected as part of the original proposal. Additives that increase cetane may also decrease biodiesel NOx emissions. Therefore, the proposed deletion ensures that potential NOx-reducing additives are not excluded from the specification of a certified ADF formulation in an Executive Order.

Applicants who have conducted ADF additive and formulation certification testing have reported cetane results for Biodiesel Additive Certification Fuel, Reference CARB Diesel, and Candidate Fuel as part of their applications, as required by the ADF regulation. CARB has also reported cetane results for Biodiesel Additive Certification Fuel, Reference CARB Diesel, and Candidate Fuel tested as part of the development of the ADF regulation and tested in support of the current amendments to the ADF regulation. DTBP is an additive, not a fuel; the ADF regulation does not require cetane testing of additives.

The commenter has not indicated what levels of cetane improver constitute "high" versus "low" levels of cetane improver in CARB diesel. However, the amount of cetane improver added to CARB diesel is relatively low, and the difference in cetane level between "high" cetane and "low" cetane CARB diesels is unlikely to result in different testing results for B20 fuels made from "high" cetane CARB diesel and B20 fuels made from "low" cetane CARB diesel. Please also see response to comment D-3 in this chapter, related to cetane impacts.

I-3. *Compliance Impact of Alternative Fuels Use*

Comment: Engine manufacturers remain concerned that the use of alternative fuels will negatively impact engines' ability to demonstrate compliance with in-use emission requirements and onboard 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. (OP_EMA1_4-2)

> **Agency Response:** In both the staff report and Attachment B of the 15-day notice, staff evaluated the potential future emissions of biodiesel and renewable diesel.[55,56] These evaluations showed that future use of biodiesel and renewable diesel in California would continue to result in emissions equivalence with conventional diesel use, as required under the ADF regulation. Regarding the comment about long-term influence of alternative fuels, this comment is not related to certification protocols and is thus beyond the scope of this particular rulemaking.

I-4. *Fuel Not Subject to Proposed Amendments*

Comment: …Oberon Fuels will be submitting an ADF Stage 1 application prior to the testing of DME-powered vehicles in the next six months

…

- While we understand the challenges associated with the fuel blends tested, we are concerned that expanding the testing requirements for fuel additives and formulations as stated could also mean expanded testing requirements for innovative fuels such as rDME. This would add another hurdle for innovative, ultralow carbon fuels coming to market. In order to move from Research & Development to Commercialization Stage, innovative fuels are already required to overcome numerous testing and market barriers. Adding additional testing requirements could stifle innovation. (B_OF1_B5-1)

Comment: Since submitting our letter, we've been able to discuss our concerns with ARB staff. And based on our understanding from these discussions, because DME and DME propane blends would be introduced for the first time commercially as a

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[55] See "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels – Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.264481480.658186833.1586968595-1042658205.1574400241.

[56] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels - Attachment B, Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions." CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf.

transportation fuel in California, these proposed changes would not affect the testing requirements for their introduction.

Secondly, while there will likely be additives in a the [*sic*] final formulations of DME used as a diesel replacement and DME propane blends, these proposed additional testing requirements would not apply to them. (T_OF2_T1-1)

> **Agency Response:** The proposed amendments are specific to biodiesel and the certification of NOx mitigating additives that are to be used in biodiesel. DME is still in Phase 1 of the Phase-In requirements outlined in § 2293.5. of the ADF regulation. The certification of DME is not affected by these amendments.

I-5. *Executive Order Modification Procedure*

Comment:

vi. Subsection (a)(2)(I) Purpose The proposed amendments replace the previously specified administrative hearing designation with a specific procedure for modification or revocation of an executive order for cause, including emissions testing that does not show emissions equivalence. The amended procedures require notification and opportunity for the entity to whom the Executive Order was issued to submit additional information for consideration prior to finalization of a determination to revoke or modify. Proposed amendments to subsection (a)(2)(I)2 address noticing of intent to revoke or modify, discontinuation of sales, and optional request for Executive Order withdrawal. The proposed amendments. Rationale These amendments are necessary to ensure that an Executive Order may be modified or revoked based on a demonstration that such modification or revocation is warranted. This specified procedure will facilitate prompt administrative correction of any certification inconsistent with in-use emissions control requirements. The previous administrative hearing requirement inadequately accounted for the strong public interest in, and importance of, immediate mitigation in potential air pollution by designating a hearing process that could allow an ineffective certification to remain in effect for many months while a hearing was pending. Because a primary purpose of the ADF Regulation is to ensure appropriate mitigation by addressing air quality effects of ADFs, potential delays of this sort that could otherwise affect public health are not appropriate. The amended process more appropriately incorporates considerations of public health in the context of potential pollution abatement and mitigation consistent with ADF regulatory requirements, while retaining an adequate opportunity for an applicant to be heard and provide relevant information in support of their certification and underlying investment.

1. ***Although not mentioned in the purpose or rationale, please explain how removing the requirement of testing a commercially available in-use biodiesel fuel blend and replacing with the proposed language that allows discretionary test procedures and or testing with any lab based CARB Reference Fuel better meets the objective of ensuring that those additives or formulations that pass emissions testing are effective in mitigating potential NOx emissions from biodiesel use?***

2. ***Please explain how eliminating the hearing process and instituting discretionary language meets the objective of ensuring a uniform playing field, and if such language circumvents the purpose of the rulemaking process?***

3. ***As an example, under the proposed amendment above, could the testing performed by CE-CERT, which has led in part to the proposed amendments, be used by the Executive Officer to modify or revoke an existing Executive Order?*** (OP_BC1_6-12)

Comment: 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. (OP_EMA1_4-11)

Agency Response:

CARB rejects the suggestion to revise the amendments to the process for revocation or modification of an approved ADF certification order to specify an "at least as robust" evidentiary standard. The suggested addition is unnecessary and duplicative of the proposed standard and process, and would potentially undermine the environmental protection purpose of that provision. As explained in the rationale section of the staff report, quoted above by a commenter, the proposed amendments to the modification or revocation process are intended to facilitate prompt administrative correction on those products that display inconsistent in-use control requirements, consistent with the purpose underlying this rulemaking of enhancing the ADF regulation to ensure that such NOx control products are effective and achieve the environmental protection benefits they are certified to achieve.

I-6. *Support of Amendments*

Comment:

3. "Although staff would view these amendments as appropriate regardless of past additive performance, recent testing on certain additives offered in the current market further reinforces the appropriateness of ensuring uniform and high standards for certification."

a. ***BEST agrees that reasonable amendments are appropriate regardless of past additive performance, and particularly in light of the variability in test procedures allowed by CARB, such as the referenced testing at CE-CERT (resulting in poor reproducibility).*** (OP_BC1_6-2)

Comment: Thanks to CARB for drawing attention to improving the testing and certification of alternative diesel fuels.

In some venues, including at the Legislature, we've heard folks representing alternative diesel fuels, who represent those fuels, exaggerate the air pollution control benefits of their products. Because CARB is essentially the only entity that tests, and monitors, and discloses how these products actually perform -- only public entity, it's essential that the testing process be unquestionably tight and accurate. And it is especially important given the health impacts of NOx emissions.

So we support the improvements proposed in these regulatory amendments and urge the Board to adopt them as proposed. (T_SCC1_T12-1)

Agency Response: Staff appreciates the commenters' support of the proposed amendments.

IV. Summary of Comments Made During the First 15-Day Comment Period and Agency Responses

Chapter IV of this FSOR contains all comments submitted during the first 15-day comment period with CARB's responses. The first 15-day comment period for additional proposed amendments commenced on October 14, 2020, and ended on October 29, 2020.

CARB received 13 comment letters on the proposed 15-day amendments during the first 15-day comment period. Table IV-1 below lists the commenters that submitted written comments on the proposed amendments during first 15-day comment period, identifies the date and form of their comments, and shows the abbreviation assigned to each.

The individually submitted comment letters for the 45-day and first 15-day comment periods are available here: https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=adf2020.

Note that some comments were scanned or otherwise electronically transferred, so they may include minor typographical errors or formatting that is not consistent with the originally submitted comments. However, all content reflects the submitted comments. All originally submitted comments are available here: https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=adf2020.

A. List of Commenters

Listed below are the organizations and individuals that provided comments during the first 15-day comment period:

Table IV-1. List of Commenters During the First 15-Day Comment Period

Commenter Letter Code	Commenter
FF_CAF6_FF1	Patrick McDuff, California Fueling, LLC. 15-Day Comment: October 19, 2020
FF_CAF7_FF2	Patrick McDuff, California Fueling, LLC. 15-Day Comment: October 22, 2020
FF_CAF8_FF3	Patrick McDuff, California Fueling, LLC. 45-Day Comment: October 27, 2020
FF_WSPA1_FF4	Tiffany Roberts, Western States Petroleum Association 45-Day Comment: October 29, 2020
FF_TRG1_FF5	Brett Maclean, Targray 15-Day Comment: October 29, 2020
FF_EMA2_FF6	Tia Sutton, Truck & Engine Manufacturers Association 15-Day Comment: October 29, 2020
FF_NBB1_FF7	Matt Herman, National Biodiesel Board 15-Day Comment: October 29, 2020
FF_CFCA1_FF8	Samuel Bayless, California Fuels and Convenience Alliance 15-Day Comment: October 29, 2020
FF_CABA4_FF9	Rebecca Baskins, California Advanced Biofuels Alliance 15-Day Comment: October 29, 2020
FF_REG3_FF10	Scott Hedderich, Renewable Energy Group 15-Day Comment: October 29, 2020
FF_REG4_FF11	Scott Hedderich, Renewable Energy Group 15-Day Comment: October 29, 2020
FF_RP1_FF12	Nathan Crum, Renner Petroleum 15-Day Comment Period: October 29, 2020
FF_VPP1_FF13	Ed Ward, Valley Pacific Petroleum 15-Day Comment: October 29, 2020

B. Proposed Alternative Diesel Fuel Formulation

B-1. *Renewable Diesel/Biodiesel Ratio*

Comment: CARB staff have grossly overestimated the amount of biodiesel that would grow in the marketplace as a justification for capping blends. Staff have proposed to cap blends at R55/B20 in order to "reserve" additional RD capacity to offset what we now know is unrealistic projections of growth in biodiesel. This proposal, shown in staff's projections shared at the June 4th workshop (and shown below), appears to have been based on an illustrative example from previous rulemakings. However, illustrative examples are simply hypothetical numbers. They are not, nor should they ever be the basis of models, particularly models with economic stakes as significant as this. Had staff reviewed existing data on market penetration of RD and BD, or even worked with stakeholders like California Fuels and Convenience Store Alliance (CFCA) or the National Biodiesel Board (NBB), the projections would look significantly different and the need to reserve RD capacity would be nullified.

Table 1. Historical and Future Biodiesel, Renewable Diesel, Conventional Diesel, and Total Diesel Demand Volumes (CARB, June 4th webinar)

Year	Historical Volumes[1]									Future Volumes[2]			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
BD Volume as B100 (million gal)	13	20	60	67	126	163	170	184	212	350	425	500	500
RD Volume as R100 (million gal)	1.8	8.8	117	113	165	256	335	384	618	650	750	850	900
RD Volume as R100 needed for full NOx mitigation of BD Volume as B100[3] (million gal)	26	40	120	134	252	326	340	368	424	700	850	1000	1000
Conventional Diesel Volume (million gal)	3585	3575	3498	3487	3466	3382	3342	3210	2988	2688	2540	2392	2374
Total Diesel Demand[4] (million gal)	3600	3604	3675	3667	3757	3801	3847	3778	3818	3688	3715	3742	3774

As a manufacturer and supplier of both RD and BD into California, REG can attest that even the NBB projections provided below are likely to be overly optimistic regarding biodiesel demand growth in California. (FF_REG4_FF11-2)

Comment: CARB's assignment of a 2.75:1 RD:BD ratio is arbitrary and unsupported.

Almost as troubling as staff's unrealistically high BD projections is their insistence that a minimum RD:BD ratio of 2.75:1 is appropriate (based on what is now understood to be multiple overly conservative assumptions). Such an approach contradicts the Board's stated direction; in direct response to a question from Board Member Mitchell, Executive Officer Richard Corey stated, "a suggestion in the context of 15-day changes could be discretion, delegation, to the Executive Officer to respond to that growing body of data and make adjustments as appropriate in terms of …. the previously defined status of the RD."[5] Taking the approach laid out in the workshop

on June 4, which locks the blend ratio at 2.75:1, is the opposite of discretion and delegation.
[5] April 23, 2020 Board Meeting Transcript page 115

Furthermore, staff appears to be conducting their analysis under the assumption that there is no additional biodiesel NOx mitigation provided by new technology diesel engines (NTDE) despite the fact that NTDEs already account for a significant percentage of vehicle miles traveled in the state. Staff appear to be missing the fact that the NOx mitigation benefits of NTDEs apply to all fuels. It is reasonable to assume that fuel is used proportionally by NTDEs and legacy engines. This reasonable assumption supports a conclusion that a corresponding percentage of the B5 gallons projected by CARB would be consumed in NTDEs, which in turn means the BD in the portion of B5 gallons used in NTDEs would contribute no increase in NOx emissions. Staff's selection of a 2.75:1 RD:BD ratio when their own emissions data indicate NOx neutrality at a 2:1 RD:BD ratio appears to confirm their desire to maintain an "RD reserve" to cover any potential NOx impacts from the use of B5 blends.

NTDEs already contribute, and will increase in their contribution, to real and substantial reductions in NOx emissions for every gallon of every type of fuel used in them. Staff cannot ignore this reality by assuming that the biodiesel in B5 won't benefit from NTDE use. CARB's apparent disregard of the beneficial impact of NTDEs in the state reflects either poor understanding of the penetration of NTDEs in the market or a less than rigorous modeling effort. REG asks that staff apply a proportional amount of the benefits of NTDE penetration to the B5 blends that they appear to believe require additional system-wide mitigation.

Under their current proposal, CARB would not be able to respond, short of another rulemaking, should there be any changes to the RD and BD volumes brought into California. It seems that this is not consistent with the intent of the Board discussion and is simply a poor regulatory policy. For example, should there be a significant and prolonged drop in RD (as additional political jurisdictions around the globe and in the US recognize the need to address climate change, the possibility of other governments developing their own clean fuel standards, while not imminent, is real), the state would still be locked in at R55/B20. Conversely, any reduction in biodiesel supply (due to disruptions in the supply chain from, say, the impacts of COVID 19) cannot be factored in allowing for lower blends of RD or higher blends of BD. As Executive Officer Corey stated during the April 23rd Board Meeting, "it's a dynamic environment and the ability to respond as that data set is involved seems to me to be an appropriate path."

REG asks that staff develop clear, unambiguous language reaffirming the Executive Officer has the authority to move the RD/BD ratio for ADF formulations up *or* down depending on the actual emissions data and market penetration of renewable diesel and biodiesel. (FF_REG4_FF11-3)

Agency Response: Staff's analysis of NOx emissions changes associated with the use of an approved R55 B20 approved formulation is based on future fuel volumes corresponding to the Project Scenario in CARB's Illustrative Compliance Scenario Calculator[57] developed for the 2018 amendments to the LCFS and ADF regulations. These future fuel volumes are not projections. Please also see response C-3 in Chapter III regarding fuel supply and availability.

CARB rejects commenter's suggestion that CARB incorporate a moving renewable diesel/biodiesel ratio for approved ADF formulations based on future emissions data and market penetration of renewable diesel and biodiesel as overly elaborate and impractical to administer. The commenter's proposal would also inappropriately risk the occurrence of lag times during which environmental damage could occur as a result of real world increased emissions impacts, that might not be corrected until environmental damage had already occurred. The proposed R55 B20 approved ADF formulation, which has a renewable diesel to biodiesel blend ratio of 2.75:1, is protective and strongly supported by the record. Staff conducted a detailed emissions analysis, provided in the 15-day notice,[58] which justifies the proposed R55 B20 approved ADF formulation. Staff notes that the fuel volumes used in staff's analysis of NOx emissions are not projections; rather, these volumes reflect a future scenario that results in compliance with the LCFS regulation.

CARB rejects the commenter's suggestion to apply a proportional amount of the benefits of NTDE penetration to the B5 blends that require additional system-wide mitigation because staff's analysis of NOx emissions from biodiesel and renewable diesel use, including use of B5 blends, already accounts for the impact of the use of these fuels in NTDEs. Details of staff's emissions analysis methodology are provided in the "Staff Analysis of ADF Formulation Blend Level" released on June 4, 2020.[59]

Staff's proposed modifications, including the addition of the R55 B20 approved formulation and the required two percent NOx reduction for certification of ADF formulations containing renewable diesel, ensure that there will be

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[57] See "Illustrative Compliance Scenario Calculator." CARB. August 15 (2018). Available at: https://www.arb.ca.gov/fuels/lcfs/2018- 0815_illustrative_compliance_scenario_calc.xlsx.

[58] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels." October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf and "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels - Attachment B, Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions. CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15dayattb.pdf.

[59] See "Staff Analysis of ADF Public Formulation Blend Level." CARB. June 4 (2020). Available at: https://ww2.arb.ca.gov/sites/default/files/2020-06/Staff_Analysis_ADF_Public_Formulation_Blend_Level.xlsx.

sufficient renewable diesel in the State to continue its roles both as a NOx mitigation formula and as an offsetting factor reducing emissions from biodiesel below the NOx control level.

For more information, please see response to comment C-2 in Chapter III regarding the renewable diesel – biodiesel ratio in the approved ADF formulation.

B-2. *Retention of R75 B20 Approved ADF Formulation Regulatory Language*

Comment: Section (a)(1)(B) Approved ADF Formulations (Page 5)

The approved renewable hydrocarbon diesel formulation #1 (with 75% renewable hydrocarbon diesel) is redundant and therefore no longer necessary, as formulation #2 with 55% renewable hydrocarbon diesel includes formulations with 75% or higher renewable hydrocarbon diesel content. WSPA suggests simplifying the language by only referencing a single formulation with 55% or higher renewable hydrocarbon diesel. (FF_WSPA1_FF4-1)

Comment: Unfortunately, the proposed 15-day changes did not simply replace the R75/B20 language with R55/B20. Instead, the proposed changes added R55/B20 as a pre-approved ADF formulation to R75/B20 without clarifying that both options are equally available to fuel providers. As we noted above, CARB's own testing shows that R75/B20 (a 3.75 to 1 ratio) is only one of several blend levels shown to achieve NOx neutrality. Other blend ratios, including 2.75 to 1 RD/BD ratio, were found by CARB to be NOx neutral. Moreover, since both formulations are equally available as a compliance option in the proposed changes, it makes little sense to keep the R75/B20 language since any amount of RD at or above 55% by volume (including but not limited to R75/B20) would meet the provision. Having both blends in the language as equal compliance options provides a potential source of confusion for fuel providers and marketers.

…

1) Simplify the Approved ADF Formulations provision by eliminating the superfluous R75/B20 language in Appendix 1, section (a)(1)(B)1. and including only the new language for R55/B20 language in section (a)(1)(B)2.

(FF_NBB3_FF7-3)

Comment: CFCA believes the R75, B20 language should be removed as it will cause confusion. The R55, B20 language is sufficient as it allows for blends at or above R55. (FF_CFCA1_FF8-2)

Comment: As explained in detail in NBB's comment letter, CABA also recommends CARB Staff:

1. Simplify the Approved ADF Formulations provision by eliminating the superfluous R75/B20 language in Appendix 1, section (a)(1)(B)1. and including only the new language for R55/B20 language in section (a)(1)(B)2. (FF_CABA4_FF9-3)

Comment: While this level is indicative of the science, we wonder why staff have proposed leaving the original R75/B20 language initially approved in April in the final regulations. We think this is redundant and potentially confusing. By definition CARB is setting the lowest amount of RD which can be put into a renewable diesel/biodiesel blend, therefore higher amounts of RD would be acceptable and allowed. We recommend deleting the R75/B20 reference as errata. (FF_REG3_FF10-3)

Agency Response: CARB rejects commenters' proposal to remove the R75 B20 formulation. Commenters are correct to understand that with the addition of the R55 B20 ADF formulation, any blend consisting only of renewable diesel, biodiesel, and CARB diesel, with a renewable diesel content of 55 percent or higher and a biodiesel content of 20 percent or lower, including the initially proposed R75 B20 formulation, is acceptable as an approved ADF formulation.

But evidence in the rulemaking record supports both approved ADF formulations (i.e., R75 B20 and R55 B20) as protective of overall NOx emissions and therefore beneficial.[60] Although including both may be to some extent duplicative, including both formulations provides clarity that both formulations were evaluated and are supported by this rulemaking record.

Please also see response C-1 in this chapter for the reasoning behind the approval of the renewable blend formulations.

B-3. *Renewable Diesel and Biodiesel Availability*

Comment: We do not have access to renewable diesel. We are approximately 6 hours from the closest source of renewable diesel. CARB diesel is barged (by Chevron) to the Eureka terminal. That is the only local source of diesel. We would have to burn ALOT of diesel to go pick up renewable diesel. Seems counter-productive.

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[60] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels. CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf and "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels - Attachment B, Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions." CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15dayattb.pdf.

As we have no "local air pollution" issues in many rural counties of California, I would request you make an exception for these counties and allow us to continue to sell B20 blends (with CARB diesel). This will allow the continued GHG benefits, with no downsides. (FF_RP1_FF12-1)

Comment: We have two AB 617 impacted communities in our business areas and are participants in both South Central Fresno and Stockton steering committees. This action is expected to reduce biomass additive blended diesel availability. These communities will be the first to feel the economic and air quality effects. Biomass blended diesel as B20 has done much of the heavy lifting to date reducing NOx as well as PM when compared to petroleum diesel, especially in these impacted areas.

We need to continue to have unimpeded access to Biomass blended diesel. Any reduction in availability of additized B20 would result higher cost and poor air quality. We are requesting CARB monitor and report publicly any changes of additized biomass diesel availability every 30 days. The petroleum diesel alternative will set back air quality, especially in those AB617 communities. (FF_VPPS1_FF13-1)

> **Agency Response:** Regarding the request by commenter FF_RP1_FF12-1 to exempt counties with no "local air pollution," please refer to response C-4 in Chapter III for additional information.
>
> Please refer to response D-2 in this chapter regarding compliance options available to stakeholders for use of biodiesel blends above the NOx control level, if currently-certified additives have not been certified consistent with the amended certification requirements by the effective date of the proposed amendments.
>
> Commenter FF_VPPS1_FF13-1 commented that "Biomass blended diesel as B20 has done much of the heavy lifting to date reducing NOx as well as PM when compared to petroleum diesel…". The ADF regulation was designed to mitigate the potential NOx emitted during the use of biodiesel. It is imperative that the certification program ensures that NOx produced due to biodiesel combustion is mitigated. That is what these proposed amendments are designed to accomplish statewide, including in disadvantaged communities.

B-4. *Use of On-Going CARB Emissions Studies for NOx Emissions Analysis*

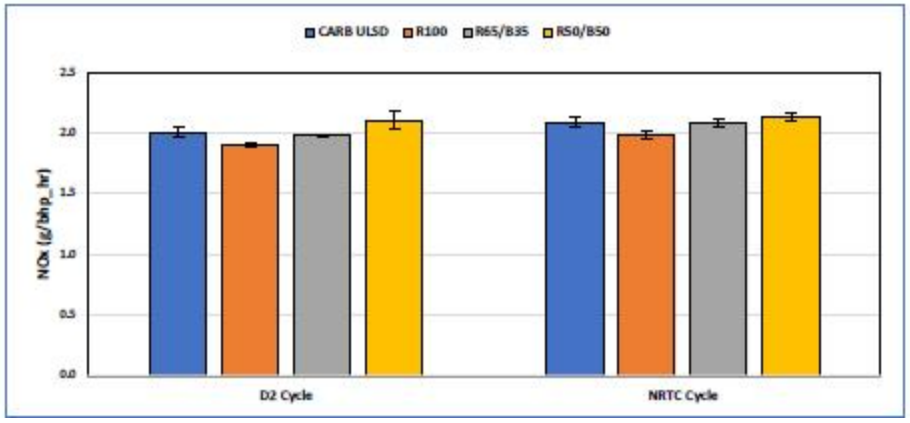
Comment: In June 2020, California Fueling was provided with Low Emissions Diesel ("LED") program's reference and candidate fuel physical properties and emissions results for R100, R65/B35 and R50/B50. The results of CARB's LED study must be considered in place of the now outdated 2009 study that CARB 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.



…

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?

…

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.

…

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. (FF_CAF6_FF1-1)

Comment: As stated in our October 19, 2020 public comment submission, CARB's claim that "[s]taff'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 a demonstrably false assumption based on the LED program's findings. Based on the LED study's legacy vehicle emissions data, renewable diesel provides **only a 5% NOx reduction** versus CARB ULSD. CARB's 10% renewable diesel NOx reduction claim, based on the 2009 program emission data, is inaccurate by a twofold factor. As a result, the "Staff Analysis of ADF Public Formulation Blend Level"[4] spreadsheet is inaccurate given staff's assumption that renewable diesel reduces NOx by 10%. More egregiously, CARB has continued to base conclusions on renewable diesel reducing NOx by 10% knowing that the LED program data indicates only a 5% NOx reduction is achievable. CARB cannot continue to promote benefits that are verifiably false based on their own more recent LED program test results. CARB is cherry picking data, choosing to ignore its own comprehensive testing conducted this year, in favor of eleven (11) year-old test results.

[4] "Staff Analysis of ADF Public Formulation Blend Level." CARB 2020. June 4. Available at: https://ww2.arb.ca.gov/sites/default/files/202006/Staff_Analysis_ADF_Public_Formulation_Blend_Level.xlsx

Further, CARB must correct their Appendix B[5] viewpoint, which states:

> "Based on emissions studies described in the introduction, renewable diesel reduces NOx by 10 percent and biodiesel increases NOx by 20 percent, meaning two gallons of renewable diesel can fully mitigate NOx emissions from a gallon of biodiesel. Based on these emissions a renewable diesel to biodiesel volume ratio of 2.0 statewide results in overall NOx equivalence with conventional diesel, if no other NOx mitigation is employed. Similarly, renewable diesel to biodiesel volume ratios above 2.0 would result in overall NOx emissions reductions, and renewable diesel to biodiesel volume ratios below 2.0 may result in NOx emissions increases. It is important to note that renewable diesel to biodiesel volume ratios below 2.0 may not result in NOx emissions increases if other mitigation methods are employed." (Emphasis added.)

[5] "Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels 15-Day Changes", Appendix B Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions, page 7.

Based on the LED program data, renewable diesel reduces NOx 5% versus CARB ULSD. For every 20% renewable diesel added to CARB ULSD, 1% NOx reduction will occur (CARB believes there's a linear relationship between percent renewable diesel and emissions impact). The only ratio at which renewable diesel can neutralize the 4% NOx increase from B20 is an 80% renewable diesel 20% biodiesel blend is a 4:1 ratio as opposed to the 2:1 ratio claimed by CARB. Furthermore, in order to neutralize the

1% NOx increase from B5, 20% renewable diesel is required. Based on CARB's 2019 conventional diesel estimates (2988 million gallons), almost 600 million gallons of renewable diesel is required to neutralize the B5 NOx increase. 618 million gallons of renewable diesel was consumed in 2019 meaning nearly all such volume went to offsetting B5 leaving little to no additional renewable diesel volume for further offsets. Lastly, it's inappropriate for CARB to consider current ADF Formulation data given its (a) intent to revoke such EO's, (b) date-based approval of such and (c) certain data was obtained prior to CARB's reference fuel specification correction (November 2017). (FF_CAF8_FF3-2)

Agency Response: The report "Low Emission Diesel (LED) Study: Biodiesel and Renewable Diesel Emissions in Legacy and New Technology Diesel Engines" referenced by the commenter is an interim, preliminary draft report produced as part of a CARB contract. The LED study is intended to inform CARB and stakeholders in the development of a potential LED measure, currently in its preliminary stage, as part of California's strategy to reduce NOx and PM emissions from mobile sources. This study was not developed for or intended to apply to these proposed amendments to the ADF regulation.

As a reasonable general practice, CARB does not reference or release interim, preliminary reports. However, the commenter, through a third party subpoena arising from litigation with an ADF additive market competitor, obtained the provisory report, and attempts now to use the data without context to discredit the proposed ADF regulatory amendments. The commenter suggests that this single, interim report contradicts the long history of research data used to develop the ADF regulatory amendments.[61]

The suggestion is unfounded. Because the LED study, and the proposed amendments for certification of biodiesel blends, are designed for different purposes and require different approaches, strained comparisons of test protocols and fuels are not pertinent to this rulemaking. Moreover, in context, the interim LED study results do not contradict or throw into doubt any of the well-established research used to develop the ADF regulatory amendments.

Please refer to response D-1 in this chapter regarding the adequacy of environmental review and response B-3 in this chapter regarding renewable diesel and biodiesel availability.

[61] See "Final Environmental Analysis Prepared for the Proposed Amendments to the Low Carbon Fuel Standard and the Alternative Diesel Fuels Regulation." CARB. September 17 (2018). Available at: https://ww3.arb.ca.gov/regact/2018/lcfs18/finalea.pdf?_ga=2.153489400.1380169015.1569650930-60175395.1569650915.

C. Certification Testing

C-1. *Required Two Percent NOx Reduction for Certification of ADF Formulations Containing Renewable Diesel*

Comment: Section (a)(1)(G)1. Candidate fuel with renewable diesel (Page 19)

Section (a)(1)(G)1 summarizes the process for determining if a tested candidate fuel that contains renewable hydrocarbon diesel fulfills the requirements for certification. The proposal states that the average NOx emissions of a tested candidate fuel must demonstrate at least 2% reduction relative to that of Diesel Test Fuel. WSPA asks if there is a minimum and/or maximum renewable hydrocarbon diesel content and recommends that the regulation be clarified to address this by either stating the content or advising that a specific renewable hydrocarbon diesel content is not required. (FF_WSPA1_FF4-2)

Comment: *Proposed renewable hydrocarbon blend NOx improvements.*

The Proposed Modifications include new requirements (at Appendix 1 of Subarticle 2, Subsection (a)(2)(G)1 and 2) that testing of candidate fuels containing renewable hydrocarbon diesel must demonstrate a NOx emissions improvement of at least 2%, and testing of candidate fuels not containing renewable diesel must demonstrate that the average NOx emissions do not increase. These modifications are problematic because there is not sufficient justification provided for such changes; moreover, this is effectively a change in the standard.

As stated by ARB Staff during a June 2020 Workshop, the Board directed the Executive Officer to determine if additional conforming modifications were appropriate (Resolution 20-2). Further, it was stated that the Board supported the Executive Officer exploring potential modifications to the Section (a)(1)(B)1 renewable hydrocarbon diesel/biodiesel formulation provided for public use, and the Section (a)(2)(F)2 requirement for certification testing at two Emission Test Facilities. However, the proposed modifications to Subsection (a)(2)(G) are new requirements that go beyond "conforming modifications." (FF_EMA2_FF6-1)

Comment: Contrary to that clear direction, however, the proposed 15-day changes would now require a new 2% NOx reduction as part of the revised certification procedure[3]. This effectively would allow the ADF program to take a "second bite at the [NOx] apple," mandating additional NOx reductions in contradiction to the Board's direction with regard to NOx neutrality. As we noted in our April 22nd comment letter, the ADF regulation was never intended to be a NOx reduction control measure; those additional NOx reduction requirements are expected to come from upcoming measures like the Low Emissions Diesel program currently under development.

[3] See sec. (a)(2)(F)2.a.iii, (a)(2)(G)1., and (a)(2)(G)5, Appendix 1 of Subarticle 2, 13 CCR 2293 et seq.

Beyond the substantive issues with the new 2% NOx reduction, this new requirement also presents an important procedural issue. This new proposed requirement is a substantial change that is not sufficiently related to the original proposal (i.e. not reasonably foreseeable based on the notice of proposed action). As noted, a 2% additional NOx reduction is inconsistent with the NOx neutrality basis for the ADF regulation, and it was never discussed in the notice of proposed action for this rulemaking. Introducing this requirement as a 15-day change therefore conflicts with the California Administrative Procedure Act and the regulations adopted by the Office of Administrative Law (OAL) to implement that statute.[4]
[4] See Government Code, Chapter 3.5, section 11340 et seq. and Title 1, California Code of Regulations, sections 1-280.

…

2. Eliminate the <u>new</u> 2% NOx reduction requirement in Appendix 1, Subarticle 2, section (a)(2)(F) and (G) (and any other provision where it is expressed or implied). (FF_NBB3_FF7-4)

<u>Comment</u>: <u>2% NOx Reduction Requirement – Oppose</u>

The 2% NOx reduction requirement was not covered in the notice of proposed action and is a substantial change to the proposed regulation. Its inclusion in a 15-day change is inappropriate and should not be included.

Further, the ADF regulation is intended to be NOx-neutral. The 2% reduction mandate should not be included as it is at odds with the direction of the Board. This regulation is not the appropriate place for NOx rulemakings, particularly when it is a substantial change not addressed in the notice of proposed action. (FF_CFCA1_FF8-3)

<u>Comment</u>: As explained in detail in NBB's comment letter, CABA also recommends CARB Staff:

…

3. Eliminate the new 2% NOx reduction requirement in Appendix 1, Subarticle 2, section (a)(2)(F) and(G)(and any other provision where it is expressed or implied). (FF_CABA4_FF9-4)

<u>Comment</u>: <u>Second, CARB's proposal for a 2% reduction in NOx over CARB diesel in any new blend application is arbitrary and unsupported by any meaningful data.</u> The ADF is designed to ensure NOx neutrality in alternative diesel formulations. It was not

promulgated to be a NOx reduction program. Creating a 2% reduction requirement offers a completely new concept outside of the scope of this regulation. The concept has never been discussed or alluded to previously; it was never a part of the workshops. Given it is a novel theory, it should not be introduced in a 15 day change.

REG fully supports the need to address NOx emissions in California and has consistently supported the ADF through its development and implementation. However, it is unclear if CARB has the authority to modify the ADF into a NOx reduction strategy; more importantly, the underlying data does not support such a move. Our previous comments highlighted a number of errors in the RD and BD penetration assumptions. Correcting for those errors significantly reduces the implied NOx impacts of biodiesel. In addition, the growing adoption of New Technology Diesel Engines (NTDEs) drastically reduces the impact of unadditized blends of biodiesel below B5. We ask the Board to delete the 2% reduction requirement. (FF_REG3_FF10-4)

> **Agency Response:** CARB rejects commenters' suggestion to remove the 2% reduction requirement. The requirement is reasonable and well supported by this rulemaking record, as explained below.
>
> The proposed amendments do not set a specific minimum renewable diesel content below which CARB will not approve certification testing of ADF formulations containing renewable diesel. But, under proposed amendments to Section (a)(2)(A)1.f. of Appendix 1 of Subarticle 2 of the ADF regulation, ADF formulation producers or importers who apply to certify their proposed ADF formulation(s) must demonstrate that use of the proposed formulation is based on sound principles of science and engineering. Such a demonstration may include data from peer reviewed journal articles or a description of the proposed chemical mechanism of pollutant reduction during combustion along with preliminary test data and independent academic analysis. The amendments also do not set a specific maximum or minimum renewable diesel content above or below which CARB would not approve certification testing of ADF formulations containing renewable diesel. However, the proposed amendments approve general use of ADF formulations with a renewable diesel content of 55 percent or higher, biodiesel at a maximum of 20 percent, and CARB diesel.
>
> The proposed modification requiring certified ADF formulations containing renewable diesel to demonstrate a two percent NOx reduction is a logical outgrowth of and sufficiently related to the original proposal, and is consistent with direction from the CARB Board. As indicated in the notice of public hearing for the proposed amendments,[62] staff proposed the inclusion of an R75

[62] See "Notice of Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels." CARB. January 7 (2020). Available at:

B20 approved ADF formulation as an emissions-equivalent formulation. Staff proposed an R55 B20 approved formulation in the 15-day notice consistent with Board direction to address "the blending issue" (i.e., the minimum renewable diesel content for the approved ADF formulation) and to address stakeholder comments that the R75 B20 formulation requires more renewable diesel than is needed to ensure NOx equivalence and could artificially restrict the use of biodiesel in California due to insufficient renewable diesel availability. This proposed modification was supported by staff's analysis provided in Attachment B of the 15-day notice.[63] Staff's analysis found that substantial use of renewable diesel in approved and certified ADF formulations, including the proposed R55 B20 approved formulation, to mitigate NOx emissions from use of biodiesel blends above the NOx control level could reduce the amount of renewable diesel available to offset NOx emissions from biodiesel blends below the NOx control level. To address this issue, staff also proposed that certification testing of candidate fuels containing renewable diesel be required to demonstrate a per-gallon NOx reduction relative to Diesel Test Fuel in order to maintain renewable diesel's effect as an offsetting factor for NOx emissions from biodiesel below the NOx control level. This proposed modification, implemented together with the other proposed amendments and modifications described in the staff report and 15-day notice,[64] is appropriate and necessary for maintaining overall NOx neutrality of the ADF program and does not aim to achieve statewide NOx reductions beyond those necessary to mitigate biodiesel NOx emissions to neutrality with conventional diesel.

Please also refer to response C-2 in Chapter III and response B-1 in this chapter regarding mitigation of biodiesel NOx emissions to equivalence with conventional diesel, staff's NOx emissions analysis to determine the minimum renewable diesel content for the approved ADF formulations, and the consideration of NTDEs in staff's analysis.

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https://ww3.arb.ca.gov/regact/2020/adf2020/notice.pdf?_ga=2.168533985.1915497612.1605028209-211680084.1591108534.

[63] See "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels - Attachment B, Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions." CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15dayattb.pdf.

[64] See "Public Hearing to Consider the Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels, Staff Report: Initial Statement of Reasons." CARB. January 7 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf?_ga=2.142177842.1277515527.1593467990-211680084.1591108534 and "Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels." CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf.

C-2. Multi-laboratory Requirement for Certification of Additives and Formulations

Comment: CARB's "Approval of a single engine for certification testing at a single emissions test facility" is not a true single facility requirement. In order to pursue this testing option, applicants must run emissions testing at three (3) different facilities using a Designated Equivalent Limits Diesel and a B20 made from such over a 5-day period. The NOx and PM emissions results from engine to engine and facility to facility have to be within specified percentages in order for results to be considered. Only then can a single facility be identified and approved after which certification testing could begin. CARB indicates in Appendix 1 (a)(2)(F)2. that the "testing may occur at a single emissions test facility using reference CARB diesel and Designated Equivalent Limits Diesel." In other words, applicants attempting to certify at a single facility will have to run five (5) certification runs – three (3) on an unadditized B20 and two (2) more on additized B20. This seems overly excessive and as is financially unattractive.

Question: What's CARB rationale and justification to require three (3) different testing facilities in evaluating unadditized B20's? The request seems overly burdensome. (FF_CAF7_FF2-2)

Continued opposition to the three-engine/three-lab screening and one-engine/one-lab certification testing procedure, as a whole, because it is inconsistent with the Executive Officer's commitment pursuant to the Board's direction

For brevity, we incorporate by reference the concerns expressed in our April 22nd and June 15th letters[5] with regard to the original amendments' 2-engine/2-lab certification and, for similar reasons, would apply those comments to the proposed 15-day changes that would institute an even more complex and onerous certification procedure. Both options are excessive in costs, complexity, and time required to implement; are "brute force" remedies applied to the entire biomass-based diesel industry (including producers with non-additized RD/BD blends proven without issue to achieve NOx neutrality) instead of being tailored to address a specific, narrow issue (i.e. the NOx neutralizing ability of additives); and are contradictory to the Board's clear direction to simplify the procedure, not make it more complicated and confusing.

[5] See https://www.arb.ca.gov/lists/com-attach/17-adf2020-UD5TNwRnVloHYghn.pdf (submitted for the April 23, 2020 hearing) and https://ww3.arb.ca.gov/fuels/diesel/altdiesel/meetings/nbb_caba_6-15-20.pdf?_ga=2.182789475.490038537.1603730010-1675909722.1574251947 (submitted for the June 4, 2020 workshop/webinar to discuss potential changes to the amendments), respectively.

3) Revise the proposed changes to the test protocol to replace the screening procedure with a simplified, single-lab/engine/fuel standardized certification procedure that can be applied by anyone seeking certification for their

blend/formulation, particularly for blends and formulations for which CARB had not previously identified any issues.

4) Work with NBB and other stakeholders to develop and implement a scientifically valid, round-robin testing program to replace the recently-approved 2-lab procedure and the proposed new 3-lab screening process. (FF_NBB3_FF7-5)

Comment: Three Engine/Three Lab Screening and One Engine/One Lab Testing Procedure - Oppose

The Board has given clear direction that the ADF regulation should be simplified and these amendments directly contradict that direction. Adding confusion to this process will only harm the goals of this regulation and the goals of ARB. Adding high costs, longer procedures, and complexity does nothing to further the work of ARB and industry in the alternative diesel fuel market. (FF_CFCA1_FF8-4)

Comment: In April, the Board directed staff to engage stakeholders to develop a workable certification process and the proposed modifications instead complicate the process.[1] The proposed modifications include a Single Engine, Single Emissions Test Facility certification testing that requires engine acceptability to be performed at a minimum of three Emission Test Facilities. Then, based on the results, the Executive Officer will determine which engines and Emission Test Facilities are acceptable for single engine, single Emission Test Facility certification testing. Like the 2-lab certification process brought before the Board and criticized in April, this certification process is unprecedented, needlessly complex and expensive.

[1] https://ww3.arb.ca.gov/board/mt/2020/mt042320.pdf; pg. 116

…

Consistent with the Board's direction, CABA recommends CARB Staff:

1. Revise the proposed changes to replace the screening procedure with a simplified, single-lab/engine/fuel standardized certification procedure that can be applied by anyone seeking certification for their blend/formulation, particularly for blends and formulations for which CARB had not previously identified any issues.

…

3. Work with stakeholders to develop and implement a scientifically valid, round-robin testing program to replace the recently-approved 2-lab procedure and the proposed new 3-lab screening process. (FF_CABA4_FF9-1)

Comment: Numerous Board members raised questions regarding the need for two testing facilities instead of one.[6] Unfortunately, the new staff proposal in this area appears to be both complex and confusing while doing little to address the need for precise emissions data upon which to base additive certifications. At its most basic level, staff is suggesting that 3 plus 1 is less than or equal to 2.

REG asks that staff abandon the three engine proposal, agree to a single facility evaluation and work with industry on developing appropriate protocols which emphasize precision over complexity.

[6] Vice Chair Berg. "Understanding lab testing from a manufacturer perspective and needing to rely on those tests, I haven't passed -- two is not necessarily better than one. I think it's really important for us to understand where the breakdowns are and try to resolve from the breakdowns. Board member Balmes, "these are technical issues that are not -- shouldn't be solidified in a way that would be difficult to move forward on. I think it's much better to have the Executive Officer have discretion to work with industry to come up with a solution." April 23 Board Meeting transcript p 116[.] (FF_REG4_FF11-4)

Agency Response: CARB rejects commenters' objections to the single engine approval alternative. Staff disagrees that the "Approval of a single engine for certification testing at a single emissions test facility" provision in the proposed ADF regulation is not a true single facility requirement. The alternative is a reasonable accommodation to stakeholder input, and is consistent with Board discussion direction.

With the addition of the single engine approval proposal, two options would be available for certification of B20 ADF formulations using a single test engine at a single Emissions Test Facility. The first option requires testing of at least three engines against each other (acceptability testing), to confirm the ability of those engines to be reliably used for biodiesel certification testing. Once acceptability testing is complete and acceptable engines are determined, applicants can use any single engine found to be acceptable for certification testing. The second option requires a successful additive or ADF formulation certification resulting in issuance of a corresponding Executive Order, based on testing with at least two engines at at least two Emissions Test Facilities. Following successful certification testing and determination of acceptable engines, applicants can use the specific engine(s) found to be acceptable for single-engine certification testing. If an applicant is attempting to certify multiple additives or formulations, these options could be economically advantageous compared to the default two engine certification testing requirement for each additive or formulation. This proposal offers flexibility consistent with Board discussion direction, and allows applicants options that will allow them to choose the most economical path depending on the number of additives or formulations they are testing, while still obtaining reliable and reproducible results.

The goal of the amendments is to reinforce the certification process for ADF additives and formulations to ensure the mitigation of additional NOx emissions that may occur due to biodiesel use. Renewable diesel/biodiesel ratios with renewable diesel of 55 percent by volume or greater will be approved for general use. But in order to assure NOx mitigation from the combustion of biodiesel, formulations with a maximum of 20 percent by volume biodiesel and less than 55 percent by volume renewable diesel must be certified.

Please see also response D-2 in Chapter III, regarding concerns that proposed amendments could be burdensome, and response D-1 in Chapter III, regarding suggestions to replace the two-laboratory procedure with round robin testing.

D. Public Process

D-1. *Adequacy of Environmental Review*

Comment: The intent of this letter is to address CARB's position that an updated Environmental Analysis ("EA") is not required. **In summary, CARB's 15-day notice statement that "there is no new information of substantial importance related to the emissions analysis that shows new significant effects or previously identified significant effects that would be more severe" does not consider the LED program and Karavalakis[1] studies which render staff's statement patently false. As a result, CARB must conduct an updated Environmental Analysis to include corrections made for past erroneous assumptions as well as demonstrably false forecasted emissions reductions.**

[1] Karavalakis, G., Jiang, Y., Yang, J., Durbin, T. et al., "Emissions and Fuel Economy Evaluation from Two Current Technology Heavy Duty Trucks Operated on HVO and FAME Blends," SAE Int. J. Fuels Lubr. 9(1):2016, https://doi.org/10.4271/2016-01-0876.

CARB's January 7, 2020 Initial Statement of Reasons ("ISOR")[2], Section VI entitled "Environmental Analysis" was written prior to CARB conducting its Low Emission Diesel ("LED") program study. The ISOR states that

> "… CARB, as the lead agency, previously prepared the 2018 EA under its certified regulatory program (Cal. Code Regs., tit. 17, §§ 60000 through 60008) to comply with the requirements of CEQA. The 2018 EA provided an environmental analysis which focused on reasonably foreseeable potentially significant adverse and beneficial impacts on the physical environment resulting from reasonably foreseeable compliance responses taken in response to

implementation of the amendments proposed in the rulemaking that went into effect in January 2019 (2018 Amendments)."

[2] https://ww3.arb.ca.gov/regact/2020/adf2020/isor.pdf

(Emphasis added.) As detailed below, the LED program data demands that CARB re-state its January 2020 ISOR findings and, as a result, issue an updated EA.

CARB asserts in the 15-day notice that

> "Past CARB-commissioned studies[3] have demonstrated the ability or some ADF Formulations to reduce NOx emissions, compared to conventional diesel. A study commissioned by CARB in 2009 found that a blend of 55 percent renewable diesel, 20 percent biodiesel, and 25 percent conventional diesel (R55 B20, which equates to a ratio of 2.75 gallons renewable diesel to one gallon biodiesel) resulted in a small NOx reduction (0.8%) compared to conventional diesel. . . . Staff analyzed the overall NOx emissions of the proposed modifications related to the approved ADF formulation blend content using publicly available data and studies."
>
> [3] "CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California, "Biodiesel Characterization and NOx Mitigation Study," Final Report." Durbin et al. 2011. October. Available at: https://www.arb.ca.gov/fuels/diesel/altdiesel/20111013_CARB%20Final%20Biodiesel%20Report.pdf.

The 15-day Notice fails to reference the LED program data, and it is readily apparent that CARB has, in fact, failed to consider this directly relevant and, more importantly, more current emissions testing data in the drafting of the 15-day notice. CARB's failure to use the more current LED program data, in favor of the outdated 2009 data, is a violation of CEQA.

…

> Additionally, CARB states in their 15-day notice that,
>
> > "[r]elying on the NOx emissions analysis in Appendix B, the proposed modifications do not propose substantial changes to the ADF regulation which require major revisions to the 2018 EA because the proposed modifications do not involve new significant environmental effects, or a substantial increase in severity of the previously identified significant effects."

This statement is simply not true based on the LED program data, as confirmed by the 2016 Karavalakis paper (see Fn. 1, above). The LED program and Karavalakis findings clearly demonstrate that:

(a) renewable diesel (R100) reduces NOx by only 5%, not 10% as relied upon by CARB; and

(b) a blend of 80% renewable diesel and 20% biodiesel increases NOx in new technology diesel engines (49.4% NOx increase in the 2014 Cummins ISX15 400ST and a 20% NOx increase in the 2010 Cummins), and does not provide a decrease in NOx emission as relied upon by CARB.

Based on these findings, both of which "involve new significant environmental effects, or a substantial increase in severity of the previously identified significant effects", the January 2020 ISOR, Appendix B included as part of the current 15-day notice and the June 4, 2020 spreadsheet are inaccurate and must be corrected.

The January 7, 2020 ISOR, Section VI, item D1., "Legal Standards" notes that:

"CEQA Guidelines section 15162 states:

(a) When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative."

In the ISOR, CARB indicates (Section VI, item D2.) that "there are no changes in circumstances or new information that would otherwise warrant any subsequent or supplemental environmental review." For the reasons detailed above, this statement is demonstrably false.

CARB goes on to state,

> "[w]hile CARB staff originally intended to ensure that the proposed amendments achieve the intended NOx-mitigating effect from the additives to address the NOx impacts from biodiesel, the actual net effect of the proposed amendments, coupled with the existing and anticipated greater renewable diesel use in California in 2020 and beyond, will ensure that the ADF regulations have a much higher level of NOx mitigation than recognized in the 2018 EA. Therefore, this new information and the proposed regulation actually results in a greater environmental benefit and, as such, does not result in significant adverse effects not discussed in the 2018 EA."

The basis for CARB's position was the stated assumption that renewable diesel reduces NOx 10% versus CARB Diesel, which CARB knows not to be true. The theory that the "ADF regulations have a much higher level of NOx mitigation than recognized in the 2018 EA" is thus not true also. Table 1 of the ISOR, corrected to consider

renewable diesel's lessened benefit, shows that for 2018 and 2019 there is no NOx benefit but rather an adverse impact.

Finally, CARB asserts in this section that,

> "(B) [t]he newly discovered information and the proposed amendments to the ADF regulations result in no significant impacts previously examined that will be substantially more severe than shown in the previous environmental analysis."

Clearly, the reduced benefits of renewable diesel, by a twofold factor (5% vs 10%), is a significant impact which results in substantially more severe results. Accordingly, CARB is obligated under CEQA to issue an updated EA.

…

In the interim, however, we trust that CARB will comply with its CEQA obligations and revisit the EA, ISOR, and the 15-day notice in light of its own contradictory data and the Karavalakis study. CARB's prior failures to comply with CEQA, and cherry picking of data, already landed it in trouble in the *Poet* litigation, it would be unfortunate if improvements to the ADF that, we believe, all stakeholders support were similarly derailed. (FF_CAF8_FF3-1)

> **Agency Response:** The comment does not make any specific recommendation or objection to any specific proposed amendment made in CARB's proposed 15-day modifications. Accordingly no response to this comment is required by Government Code section 11346.9. While CARB's regulations governing its procedures under CEQA do not require CARB to respond to CEQA-related comments made during this 15-day notice period because CARB did not release a draft Environmental Impact Analysis along with the 15-day notice, CARB, nonetheless, addresses the commenters CEQA-related contentions, below.[65]
>
> Although the comment does not tie the argument to any particular recommendation or objection regarding any specific proposed amendment or modification, it argues that additional CEQA analysis is necessary to support the modifications. CARB disagrees and stands by its environmental analysis in its 15-day notice and associated appendices, which support CARB's conclusions, with substantial evidence, that the modifications to the ADF regulation amendments (the "project," under CEQA) will maintain NOx emission

[65] See California Code of Regulations, Title 17, Division 3, Chapter 1, sections 60000-60008. Available at: https://govt.westlaw.com/calregs/Document/I8E5995B420BE43C4BD4C81FA9D0E39FF?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default). Accessed February 16, 2021.

equivalency with conventional diesel, as established in the 2018 EA on the 2018 ADF regulation amendments. As a result, CARB determined that the modifications to the ADF regulation amendments in the 15-day notice do not create new significant environmental effects or a substantial increase in the severity of previously identified significant effects in the 2018 EA and, thus, do not warrant subsequent environmental review under California Code of Regulations, title 14, section 15162. In addition to the existing documentation in the record, CARB supports this determination further by rebutting the commenter's claims that it has presented evidence contrary to CARB's CEQA determination in its 15-day notice, as follows.

The commenter argues that certain information was not adequately considered by CARB, in particular:

1. The results of a 2016 Karavalakis study, which according to the commenter, demonstrates that use of an R80 B20 blend in an NTDE would result in a NOx increase, and not a NOx decrease; and

2. Preliminary results of CARB's in-progress emissions testing intended to support development of a potential future Low Emissions Diesel (LED) regulation, which, according to the commenter, demonstrate that use of pure renewable diesel in non-NTDEs results in a five percent NOx reduction, and not a 10 percent NOx reduction. Please also see response B-4 in this chapter regarding the use of preliminary LED study results.

Neither of these premises holds up in context to support the comment's conclusions. While none of the information the commenter points to was required to be considered, CARB has considered the information to the extent it might be required, and in any case the information does not substantively support the commenter's argument that additional analysis is required. Moreover, as indicated in the next paragraph, the information in the 2016 Karavalakis study is not "new information of substantial importance, which was not known…at the time the previous [EA] was certified as complete."[66] Rather, CARB knew of, and evaluated the information at the time it certified the 2018 EA on the ADF rulemaking, undercutting the commenter's claim that such information warrants further environmental analysis for this project.

Staff reviewed the Karavalakis study cited by the commenter during the rulemaking process for the 2018 amendments to the LCFS and ADF regulations,

[66] See California Code of Regulations, Title 14, Division 6, Chapter 3, section 15162(a)(3). Available at: https://govt.westlaw.com/calregs/Document/IC1DC88F0D48811DEBC02831C6D6C108E?viewType=FullText&originationContext=documenttoc&transitionType=StatuteNavigator&contextData=%28sc.Default%29. Accessed February 16, 2021.

and responded to this same commenter's similar comments in the context of that rulemaking.[67] As explained in that proceeding, staff did not consider the 2016 Karavalakis study as part of its quantitative emissions analysis because it did not satisfy staff's study selection criteria, as outlined in the 2015 ADF staff report.[68] Please refer to response C-1 in Chapter III for more information regarding staff's review of the Karavalakis study.

As noted in response B-4 in this chapter, the commenter is citing preliminary results from a CARB study that has not yet been completed or publicly released by CARB. CARB provided these preliminary results to the commenter in response to a third party subpoena request for documents arising from the commenter's litigation with its competitor, along with a request that the commenter not release these preliminary results because the results had not been fully reviewed and certified by the contractor or CARB staff. Work on CARB's LED emissions testing program continues, and accordingly it would be scientifically and procedurally premature and inappropriate to formally incorporate conclusions, which have not yet been finalized, from that work into the current rulemaking. Furthermore, CEQA requires that an agency's action be supported by substantial evidence, which includes "fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact."[69] Even assuming the referenced CARB study is "new" and required CARB to conduct additional analysis under CEQA for this rulemaking, which it does not for reasons stated herein, due to the lack of final scientific review of the findings and conclusions, the referenced CARB study, its preliminary findings and conclusions would not, in CARB's view, be considered "fact" until it formally finalizes the study's findings and conclusions. For this additional reason, CARB did not rely on the study for the current ADF regulatory amendments because it did not believe it constituted substantial evidence in its incomplete state to support CARB's actions on the amendments.

Notwithstanding CARB's adequate basis for not including the LED study in this rulemaking, noted above, CARB, nonetheless, would like to address commenter's statements about the LED study to correct the record on this point. The commenter's arguments regarding any potential implications of preliminary emissions results from the referenced ongoing CARB LED study for

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[67] See response to comment CAF3_SF14-1 on page 90 in "Responses to Comments on the Draft Environmental Analysis for the Amendments to the Low Carbon Fuel Standard and Alternative Diesel Fuel Regulations." CARB. September 17 (2018). Available at: https://ww3.arb.ca.gov/regact/2018/lcfs18/rtcea.pdf?_ga=2.183180390.1573578604.1607977437-211680084.1591108534.

[68] See "Proposed Regulation on the Commercialization of Alternative Diesel Fuels – Staff Report: Initial Statement of Reasons." CARB. January 2 (2015). Available at: https://www.arb.ca.gov/regact/2015/adf2015/adf15isor.pdf.

[69] See Public Resources Code, section 21080(e)(1). Available at https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC&sectionNum=21080. Accessed February 16, 2021.

this rulemaking are misleading and incorrect on the substance. The preliminary LED study results referenced by the commenter showed that an R65 B35 blend, which corresponds to a renewable diesel to biodiesel blend ratio of 1.9:1, is approximately NOx-equivalent to conventional diesel when used in an off-road non-NTDE. While not final, this preliminary result, nonetheless, suggests that it is consistent with the 2009 CARB study, which CARB relied on for the proposed ADF regulation amendments, where the 2009 CARB study found that use of renewable diesel and biodiesel at a 2:1 ratio results in NOx equivalence with conventional diesel when used in an on-road non-NTDE. Therefore, although the magnitude of the NOx reduction associated with renewable diesel use relative to conventional diesel appears to be lower for the off-road NTDE in the ongoing LED study as compared to the NOx reductions in the on-road non-NTDE in the 2009 study (i.e., a five percent reduction compared to a ten percent reduction, respectively), based on the preliminary results of the ongoing LED study, the ratio of the NOx emissions reductions associated with renewable diesel and biodiesel relative to conventional diesel appear to be similar for both engines in both studies (i.e., approximately a 2:1 ratio). The preliminary results of the ongoing LED study are consistent with the results of the 2009 CARB study that were used to support the proposed R55 B20 approved formulation and the proposed requirement for certification testing of candidate fuels containing renewable diesel to demonstrate a NOx reduction relative to the Diesel Test Fuel on a per-gallon basis. Therefore, the preliminary results of the ongoing LED study are also supportive of these proposed amendments to the ADF regulation.

In conclusion, staff's analysis of NOx emissions supporting the modifications in the 15-day notice relied on the relative magnitudes of the NOx emissions changes associated with renewable diesel and biodiesel (i.e., the ratio of renewable diesel to biodiesel that results in NOx equivalence with conventional diesel) and not simply the individual magnitudes of NOx emissions changes associated with each fuel considered separately. Neither the Karavalakis study, nor premature initial analysis of the preliminary LED study results constitutes new information of substantial importance related to the emissions analysis that shows new significant effects or previously identified significant effects that would be more severe than those identified in the 2018 EA for the 2018 LCFS and ADF regulation amendments. Similarly, the modifications to the ADF regulation amendments in the 15-day notice are not substantial changes to the underlying rulemaking project that require revisions to the 2018 EA because, as noted herein and in the 15-day notice, the changes do not create new significant environmental effects or a substantial increase in the severity of previously identified significant effects in the 2018 EA. Therefore, staff confirms, consistent with the reasoning in this FSOR and the 15-day notice, that no additional environmental analysis of the modifications to the proposed amendments is required under California Code of Regulations, title 14, section 15162.

D-2. *Effective Date for Certification of Additives and Formulations*

Comment: [CARB] should hit the pause button on changes to the ADF until the LED program data is made available and can be evaluated by all stakeholders. (FF_CAF6_FF1-2)

Comment: In summary, CARB's proposed timeline is unachievable. The complexity of the proposed ADF NOx Mitigant certification requirements is outlined following. Simply put, once the regulation has been finalized and accepted a minimum of twelve (12) months will be required to certify a NOx mitigant.

On December 13, 2019 CARB held an ADF workshop and discussed, amongst other matters, an updated NOx Mitigant approval process and a forecasted timeline. The forecasted effective date of ADF amendments was July 1, 2020 with the new NOx Mitigant requirements going into place on January 1, 2021. This meant that stakeholders desiring to meet the new NOx mitigant testing requirements had approximately six (6) months to work on certification. CARB's January 7, 2020 ISOR confirmed this timeline which certain stakeholders, through public comments submitted in response to the ISOR or made at the April 2020 public hearing, indicated was unachievable. In CARB's most recent ADF proposal they have extended the new NOx Mitigant testing requirements implementation date to April 1, 2021 but have effectively given interested stakeholders less time to meet the new requirements given that there's no forecasted effective date for the new amendments to go into place and any new proposed regulation likely won't be completed until the end of the year. CARB is allowing for only three (3) months to certify new NOx mitigants which is not possible.

Question: Will CARB grant more time for stakeholders to meet the new NOx Mitigant testing requirements once the OAL has given their final approval. As opposed to fixing actual dates, will CARB allow twelve (12) month to certify after OAL approval? If CARB believes it will take less than twelve (12) month, CARB should explain how new NOx mitigant testing can be achieved in any less time.

Given CARB's proposed timeline it must believe that the new certification process can be completed in six (6) months or worse yet potentially three (3). There are two (2) recent examples where CARB itself has conducted ADF work which was not achieved in anywhere near six (6) months. In addition, California Fueling was the first company to achieve successful certification of its VESTA® brand of NOx Mitigant(s) and is well aware of the time it takes to certify. All efforts, CARB's and California Fueling's, took considerably more than six (6) months. Our effort took approximately eighteen (18) months. Given CARB's newly proposed NOx Mitigant testing requirements additional time, beyond what was experienced in the past, is justified.

Question: From beginning to end (initial approval to final completion), how long did it take CARB to complete the (a) NOx Mitigant evaluation and (b) LED program? CARB should not hold applicants to a different timeline than what CARB experienced. If CARB does, what is their rationale/justification in doing so?

The process to formulate and acquire a reference fuel and biodiesel takes approximately 2-3 months. We cannot comment on how long it may take to obtain a "Designated Equivalent Limits Diesel". In advance of having the full amount of fuels required for certification testing, a smaller quantity of fuels is normally shipped to testing facilities for preliminary engine screening work and physical property testing to gauge the potential for successful certification testing. We don't believe CARB has adequately accounted for this pre-screening time which will take approximately one (1) month.

…

Is CARB asking applicants to (a) submit journal articles in support of their respective additives(s) and (b) have those articles peer reviewed? If so, has CARB accounted for the time to have articles peer reviewed or preliminary data to be screened by academia (no definition of "academic" exists; one should be added)? Has CARB considered the time required to do one or the other? If so, how long does CARB believe the screening process will take?

…

Question: Has CARB taken into consideration the number of approved testing facilities and the time it will take for a number of applicants to get through screening and certification testing at a minimum of two (2) facilities? What about three (3) facilities based on the single facility testing option?

…

In summary, CARB's proposed NOx Mitigant certification process will require the following steps; the associated time for each step is estimated.

1. Reference Fuel, Biodiesel and Designated Equivalent Limit Diesel: 2.5 months
2. Pre-screening: 1 month
3. Test Protocol Approval: 2 months
4. Test Facility Identification, Proposal Review and Selection: 3.5 months
5. Certification Testing: 1 month
6. Timeline delays: 2-3 months

We estimate the total time to certify is twelve (12) months in a best-case scenario.

Question: Does CARB agree with the above noted timeline? If not, please indicate with rationales any steps that CARB believes will take less or more time.
In lieu of the above noted timeline, which is based on actual experience, we request that CARB allow for a minimum of one (1) year to obtain NOx Mitigant certification under any newly proposed ADF. As a result, we ask that CARB extend the decertification all of existing Executive Orders until one year from the OAL approval date. Thank you in advance for your consideration. (FF_CAF7_FF2-1)

Comment: Section (a)(1)(J) Deadline for recertification (Page 22)

The April 1, 2021 proposed deadline to recertify all formulations does not provide sufficient time to perform all tasks required under the proposed amendments. Per the rulemaking's original schedule, the ADF regulation would have become effective January 1, 2021. Given the addition of more than six months to the rule making timeline through the addition of these proposed modifications, the qualification window is now reduced to 3 months, as opposed to the originally planned 9 months. Such a narrow qualification window can create instability within the LCFS market, particularly for biodiesel.

…

Considering further potential delays due to impacts from COVID, WSPA suggests a deadline of at least December 31, 2021 to provide sufficient lead time for all the testing to be performed according to the proposed amendments. (FF_WSPA1_FF4-3)

Comment: These are compounded by CARB's fast-approaching implementation date, which we deem to be completely unrealistic. (FF_TG1_FF5-3)

Comment: While the Proposed Modifications include a delayed effective date – recognizing the many stakeholder comments regarding the inadequacy of a January 1, 2021 effective date – April 1, 2021, is similarly problematic. As noted above, the Proposed Modifications include changes that are more substantive in nature. An effective date of April 1, 2021 would thus create the same issue as the Proposal, of insufficient time for implementation following publication of the significant changes envisioned in the Proposed Modifications and subsequent approval by the California Office of Administrative Law (OAL). EMA recommends a delay in the effective date of the rulemaking until at least 12 months following OAL approval. (FF_EMA2_FF6-2)

Comment: Support for a longer phaseout of certified formulations and additives to a minimum of six months to ensure an orderly transition to the recently adopted amendments.

We also incorporate by reference our comments in the April 22nd and June 15th letters regarding a requested delay in the amendments' effective date. We note the

proposed 15-day changes would apply the modified amendments on April 1, 2021, a delay of three months from the start of 2021 and just over four months from now. While we appreciate the proposed delay, it is patently inadequate for the industry to transition in an orderly way to the new requirements. Allowing the amendments to enter into effect on April 1, 2021 will almost certainly result in significant market disruptions for biomass-based diesel, which for the past several years have provided nearly half of all LCFS carbon reductions and credits and over 41% of the program's GHG reductions since the start of that program.

As noted previously, it takes many months for a producer to secure the testing lab, engines, test fuels, and other items needed to conduct the emissions testing; conduct the testing itself; review the results; submit and receive approval of an application for certification; and make operational modifications to effectuate necessary changes to product inventory, supply chains, product transfer documentation, and related steps. It is unreasonable for CARB to expect the industry to develop, secure, and execute with two or three testing labs a complex, expensive, and comprehensive test protocol by April 1, 2021 since the final details of the test procedure remains subject to change and will not be known until sometime in December 2020, at the earliest. The rulemaking is still in the middle of a supplemental comment period (with the possibility of one or more additional supplemental comment periods that can further change the test procedure or other requirements); it will be very challenging for CARB to even complete the rulemaking within the APA requirements by the end of December 2020, especially given the 30 working days OAL has to review rulemaking packages.

We previously requested a six month delay in the effective date of the ADF amendments. But that was when the amendments were approved for adoption in April 2020 and the rulemaking was expected to be completed within several months afterward. If the rulemaking had been completed as expected within a few months of that hearing, the industry would have had approximately eight to twelve months for an orderly transition to the new requirements. Instead, it is nearly November 2020, we do not yet have a finalized version of the regulation, and the industry is expected to complete in three months what was going to take eight to twelve months or more to accomplish at high cost and difficulty.

Accordingly, the three month delay is simply inadequate for avoiding significant market disruptions in the supply of biomass-based diesel to serve California's needs.

…

Consistent with the above comments, we recommend the following changes to the proposed 15-day modifications to the amendments approved for adoption by the Board at its April 2020 hearing:

…

5) Extend the phase out date for currently certified NOx additives and formulations **to no earlier than July 31, 2021** to provide a more orderly transition for producers to secure the necessary testing and adjust their operations. (FF_NBB3_FF7-6)

Comment: Additional Time for Transition – Support for Six Month Delay

As April 1, 2021 rapidly approaches, test procedures are not in place. Three months is far too little time for market participants to develop test and analysis procedures and apply for certification. CFCA asks additional time be given to avoid market disruptions for the most successful GHG reduction pathway in California. (FF_CFCA1_FF8-6)

Comment: The complexity of this certification process makes the need for a 6-month phase-out extension even more necessary.

In our June comments, we asked to extend the phase out date for currently certified NOx additives and formulations to July 31, 2021, to provide a more orderly transition for producers to adjust their operations. The proposed modification extends the phase out date to April 1, 2021. While we appreciate the gesture, this short extension does not adequately provide the time needed to comply with proposed amendments.

As we previously stated, "Formulators will need months to work through the new requirements once they are finalized, identify appropriate test labs, develop and secure testing agreements and protocols, conduct the tests and take numerous other steps to comply. Further, producers need additional time to ensure an orderly transition to the recently adopted requirements and any subsequent changes CARB finalizes and implements. Particularly affected are those producers whose infrastructure and operations were built around the production of the certified additives and blends. Producers need time to install new mixing tanks, establish new supply chains and make numerous other infrastructure and operational changes to meet the new requirements. It is by no means a trivial effort to transition from one business model to another within the amendments' compressed timeframe."[2]

[2] https://ww3.arb.ca.gov/fuels/diesel/altdiesel/meetings/nbb_caba_6-15-20.pdf?_ga=2.131698447.1685458045.1603747913-1279392532.1597865421

The regulatory process for the proposed amendments to the ADF began in January 2020 with the original plan of finalizing the package by April 2020. We are now in October without finalized processes or clear direction for compliance. By the time the Office of Administrative Law (OAL) approves this regulation, stakeholders will only have 3 to 4 months to change their operations in order to comply, instead of the intended 6 to 8 month period in the original timeline. Stakeholders should not be punished with a shortened transition period because of the delay in the regulatory process.

Consistent with the Board's direction, CABA recommends CARB Staff:

…

2. Extend the phase out date for currently certified NOx additives and formulations to no earlier than July 31, 2021 to provide a more orderly transition for producers to adjust their operations. (FF_CABA4_FF9-2)

Comment: REG believes the shift in effective date is inadequate. The new amendments propose moving the implementation time from January 1, 2021 to April 1, 2021. This change appears to be in response to the near unanimous feedback that the marketplace will need more time to adjust and respond to the added complexity to the certification process CARB is proposing. Were the 15 day amendment changes proposed in June or July, this change would be reasonable and justified.

However, staff have taken several additional months before publishing the Amendments on October 14. It will take considerable effort for CARB to even finalize this rule before the end of the year. Any submission under the new protocol will have to be analyzed and approved by staff prior to beginning certification testing. It is highly unlikely CARB staff will be able to provide the analysis and feedback prior to the April 1 date. Further, the process CARB is proposing increases the testing facilities from 1 to as many as 3. Under the new Amendments, the simple logistics of contracting with a facility, procuring samples and preparing test rigs is longer than 3 months. Accordingly, we recommend the Board adopt a September 1, 2021 implementation date.

Staff may respond that the need to ensure NOx emissions do not increase outweigh any benefit to a later start date. We fully support the need to address NOx in California. However, the data does not support such a claim. We refer staff to our Comments of June 15 pages 4 and 5 for a more detailed explanation, and to the data submitted as part of our previous certification of RD/BD NOx mitigated blends. (FF_REG3_FF10-1)

Comment: Lastly, while not the main focus of our comments, we would like to address the timing of these changes and the ability of industry to respond. The very earliest the Board could approve additional amendments is the July Board meeting. Given the need to significantly revise the concepts from the workshop, that timing might be optimistic. Realistically, industry will have four, or at most five months, to resubmit any applications for new Executive Orders. Given the complexity presented at the Workshop, that timeframe is unrealistic and unworkable.

The Board reiterated their support for continued focus on NOx between now and when the changes to the ADF amendments would take effect.[7] We wholeheartedly agree. Fortunately, staff's own analysis of previous year's data have shown an overall

NOx decreases as well as a sufficient amount of RD to provide any NOx reductions over and above all biodiesel in the state. Given the impact of COVID 19 to the economy, vehicle miles are down and with it corresponding emissions from burning fossil fuels. Supply chain impacts have also meant less biodiesel available for sale in the state.

[7] Board member Balmes, "I want to reiterate that reducing NOx emissions, especially related to diesel traffic through our disadvantaged communities has to be our primary goal here." April 23 Board Meeting transcript p 117

REG asks that staff change the effective implantation [*sic*] date to July 1, 2021 in order to allow business enough time to react and adjust to the new certification requirements. (FF_REG4_FF11-5)

Agency Response: Staff proposes to extend the date after which only biodiesel additives or ADF formulations approved or certified under the proposed amendments can be used to comply with biodiesel in-use requirements ("the effective date for the certification provision") from April 1, 2021 to August 1, 2021 to address stakeholder comments that there is insufficient time to certify biodiesel additives or ADF formulations under the amended procedures or to transition to other compliance options. However, CARB rejects the commenters' suggestions to extend the date beyond the proposed August 1, 2021 effective date, because there are several feasible compliance approaches for use of biodiesel above the NOx control level that will be available at that time.

For the two 15-day modifications notices, staff evaluated the NOx emissions changes associated with extending the effective date for the certification provision in Attachment B. Staff concluded that extending the effective date for the certification provision from January 1, 2021 to August 1, 2021 would be protective of NOx emissions under reasonably foreseeable scenarios.

At the Board Hearing on April 23, 2020, and in informal written comments and discussions with stakeholders following CARB's June 4, 2020 workshop to present proposed 15-day changes, several stakeholders commented that the January 1, 2021 effective date for the certification provision would not allow sufficient time for applicants to certify their additives and ADF formulations under the amended procedures or to transition to other compliance options stakeholders requested an extension of the effective date for the certification provision. To address stakeholder comments and concerns, staff proposed adjustments to the effective date for the certification provision, first from January 1, 2021 to April 1, 2021, and then from April 1, 2021 to August 1, 2021 as part of 15-day notices. These delays in the effective date for the certification provision provide stakeholders with over a year to plan for and initiate certification testing under the amended procedures, or to transition to other

compliance options, from the time when the amendments to the ADF regulation were approved for adoption by the Board.[70]

During CARB's June 4, 2020 workshop to present potential 15-day changes, staff offered to work with stakeholders who were considering certifying their additives or ADF formulations under the amended procedures to initiate discussions and informal review of their certification test plans prior to final adoption of the amendments to the ADF regulation. Staff extended this offer in response to stakeholder concerns about the timeline for certification of additives and ADF formulations and with the aim of reducing this timeline as much as possible. However, until late in Q4 2020, staff had not received any follow-up communications from stakeholders indicating interest in pursuing certification of their additives or ADF formulations or requesting to work with staff to initiate discussions related to certification test plans under the amended procedures.

As discussed in the staff report and the 15-day notice, there are several other options available to stakeholders for use of biodiesel blends above the NOx control level, if currently-certified additives have not been certified consistent with the amended certification requirements by the proposed effective date for the certification provision. These options include the use of approved ADF formulations (R55 B20 and R75 B20), use of DTBP as an approved additive, and use of station and fleet exemptions. There is also the option to use biodiesel in blends of B5 and lower.

E. Miscellaneous

E-1. *Support of Modifications*

Comment: Support for the reduction in the RD to BD ratio from 3.75 to 1 to 2.75 to 1 in the "Approved ADF Formulations" provision

We appreciate and support the proposed change that would reduce the renewable diesel to biodiesel ratio (RD to BD ratio) contained in the approved ADF formulation provision[1].

[1] Section (a)(1)(B), Appendix 1, Subarticle 2, 13 CCR 2293 et seq.
…

[70] The Board approved for adoption the amendments to the ADF regulation at the Board Hearing on April 23, 2020. The Board also gave the Executive Officer discretion to make modifications related to the number of laboratories required for certification testing and renewable diesel blend ratios for approved ADF formulations. Available at: https://ww3.arb.ca.gov/board/mt/2020/mt042320.pdf.

For any formulation containing lower levels of renewable diesel (up to but excluding R55/B20), the proposed 15-day changes provide an opportunity for fuel providers to certify such formulations. We support and appreciate this flexibility to certify blends as NOx-neutral[2] which have less than 55% renewable diesel, since that has previously been shown as possible by the Renewable Energy Group. The additional flexibility is also consistent with the Board's direction to maintain the ADF regulation as a NOx-neutral measure.

[2] Note that the regulatory language approved by the Board at its April 2020 hearing acknowledges the regulation's NOx-neutrality ("The Executive Officer may…revoke an Executive Order…[for a certified] ADF formulation [that] does not meet the emissions equivalence criteria under (a)(2)(G) of this appendix… ." [Emphasis added.]

(FF_NBB3_FF7-1)

Comment: Change in Renewable 75% and Biodiesel 20% Language – Support with Amendment

The California Fuels and Convenience Alliance appreciates the change to the R75/B20 language to R55/B20. (FF_CFCA1_FF8-1)

Comment: Inclusion of a new R55/B20 approved blend

REG supports the inclusion of the new approved RD/BD blend formula. The inclusion of the new formula is consistent with the commitment staff made at the April Board meeting to revisit the calculations used to determine NOx mitigation. The 2.75 to 1 ratio is well supported by CARB data and reflects the thinking of staff as presented in the June workshop.
…

New requirement for 2% NOx reduction on any new RD/BD blends below R55

First, CARB staff should be commended for recognizing that there is the potential for other RD/BD blends to be brought to market (see our June comments pages 5 and 6). Prohibiting new blend applications was an aberration from the previous amendments and we are pleased to see it is removed in this package. (FF_REG3_FF10-2)

> **Agency Response:** Staff appreciates commenters' support of the proposed modifications to the amendments to the ADF regulation.

E-2. *Out of Scope*

Comment: As a result of these new testing requirements, there is a high likelihood that biodiesel cannot be fully utilized in California to generate credits for most of 2021. (FF_WSPA1_FF4-4)

> **Agency Response:** This comment is beyond the scope of the proposed modifications identified in the 15-day notice.[71] Please refer to response F-2 in Chapter III regarding potential impacts to the LCFS.

Comment: The proposed re-certification protocol is cost-prohibitive and will further hamper an industry already struggling with the demand destruction brought about by COVID-19. (FF_TG1_FF5-1)

> **Agency Response:** This comment is beyond the scope of the specific modifications identified in the 15-day notice. For more information regarding costs of the proposed certification testing and other economic impacts, please refer to responses F-1 and F-3 in Chapter III.

Comment: The proposed re-certification protocol presents technical and logistical challenges that will be extremely difficult to overcome for many industry participants. (FF_TG1_FF5-2)

> **Agency Response:** This comment is beyond the scope of the specific modifications identified in the 15-day notice. Please also refer to response D-2 in Chapter III regarding the nature of challenges posed by the proposed amendments.

Comment: As we noted in our testimony and written comments at the April 23rd hearing, the language approved for adoption erroneously reflected a RD to BD ratio of 3.75 to 1, which in turn was translated to a requirement that a minimum of 75% RD be blended with a maximum of 20% biodiesel (R75/B20) in order for a RD/BD blend to be pre-approved as a NOx-neutral ADF formulation. But as we pointed out, the approved language was both mathematically incorrect and not supported by CARB's own testing data as the level needed for NOx-neutrality. Accordingly, the Board directed the Executive Officer to work with stakeholders to revise the ratio to reflect a RD to BD ratio of 2.75 to 1, which would translate to R55/B20 as contained in the proposed 15-day changes. (FF_NBB3_FF7-2)

> **Agency Response:** For information regarding staff's analyses and basis for the proposed R75 B20 approved ADF formulation, please refer to response C-2 in Chapter III.

Comment: Rule Should Not Apply in Attainment Areas

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[71] See "Modified Text and Availability of Additional Documents and/or Information." CARB. October 14 (2020). Available at: https://ww3.arb.ca.gov/regact/2020/adf2020/15daynotice.pdf.

This rule may make it more difficult to provide B20 blends in certain areas, mostly rural areas already in attainment. As these areas have achieved the goals laid out, those areas should be exempt from this amendment. (FF_CFCA1_FF8-5)

> **Agency Response:** This comment is beyond the scope of the proposed modifications identified in the 15-day notice. For information regarding an "aggregate" or "system-wide" approach for determining the adequacy of NOx mitigation, please refer to response C-4 in Chapter III.

Comment: For reasons that are still unclear, the language in the ADF amendments includes definitional changes adding "ADF Formulations" to Appendix 1, subarticle 2.[3] While the word "formulation" is open to interpretation, in follow-up discussions with REG employees, CARB staff have indicated on two separate occasions that the Executive Orders for REG RD/BD blends would be subject to the new amendments requiring recertification and evaluation. REG strongly objects to this approach.

[3] Board package April 23, 2020; Appendix A: Proposed Regulation Page A-2/A-17

CARB established a clear and thorough process to evaluate and approve blends of RD/BD in the 2017 amendments. As discussed in note 3 of the Technical Background above, REG engaged in this process and submitted detailed data following CARB procedures that demonstrated the NOx neutrality of RD/BD blends up to 55% BD (i.e., R45/B55) with REG proprietary RD and up to 33% BD (i.e., R67/B33) with an unusually low cetane RD. The test results supporting these registrations are clearly consistent with CARB's published test results, which were based on CARB's selection of an unfavorably non-representative RD (as described in note #1 of the Technical Background above) and which CARB is now using to justify their proposed allowance of RD/BD blends with a minimum RD:BD ratio of 2.75:1. If CARB perceives their NOx data to be reliable enough to support the 2.75:1 ratio they have proposed, the REG data are, by obvious and reasonable extension, reliable enough to support the previously-acknowledged NOx neutrality of REG's proprietary ADF registered fuels.

In the light of CARB's renewed concerns about actual NOx emissions in the state of California, it would be reasonable for CARB and REG to engage on the allowed RD:BD ratios in REG's proprietary fuel registrations by reviewing the large quantity of additional emissions data REG has generated on the path to our ADF applications, as well as any additional data CARB staff have generated since 2011. It seems unreasonable for CARB to arbitrarily reject our registrations in their entirety in the absence of any data supporting this decision. REG sincerely looks forward to engaging with CARB staff as they make informed decisions on this matter.

Not only is the unsupported rejection of our proprietary fuel registrations antithetical to the putative data driven nature of the ADF program, but such action unfairly and needlessly penalizes both REG and the residents of California, who will be deprived of proven NOx neutral low-carbon fuel. REG has worked with CARB staff since 2017 to

comply with the requirements of the ADF to develop and submit RD/BD blend certifications to the Executive Officer. REG has invested countless hours and significant dollars developing data packages that were ultimately approved. We have further spent significant resources to develop these market opportunities based on the rules CARB established; to change the rules midstream without supporting data is simply unfair.

…

REG asks that staff develop clear, unambiguous language stating REG's existing registrations for our proprietary RD/BD blends are not subject to the new amendments. (FF_REG4_FF11-1)

> **Agency Response:** This comment is beyond the scope of the proposed modifications identified in the 15-day notice. Staff's proposal as part of the ADF amendments does not include a legacy certification provision to allow the continued use of Executive Orders prior to adoption of the proposed amendments. For more information regarding the basis of staff's proposal, please refer to response E-3 in Chapter III.

V. Summary of Comments Made During the Second 15-Day Comment Period and Agency Responses

Chapter V of this FSOR contains all comments submitted during the second 15-day comment period and CARB's responses. The second 15-day comment period for additional proposed amendments commenced on January 12, 2021, and ended on January 27, 2021.

CARB received 13 comment letters on the proposed second 15-day amendments during the second 15-day comment period. Table V-1 below lists the commenters that submitted written comments on the proposed amendments during the second 15-day comment period, identifies the date and form of their comments, and shows the abbreviation assigned to each.

The individually submitted comment letters for the second 15-day comment periods are available here: https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=adf2020.

Note that some comments were scanned or otherwise electronically transferred, so they may include minor typographical errors or formatting that is not consistent with the originally submitted comments. However, all content reflects the submitted comments. All originally submitted comments are available here: https://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=adf2020.

A. List of Commenters

Listed below are the organizations and individuals that provided comments during the second 15-day comment period:

Table V-1. List of Commenters During the Second 15-Day Comment Period

Commenter Letter Code	Commenter
SF_CAF9_SF1	Patrick McDuff, California Fueling, LLC. Second 15-Day Comment: January 20, 2021
SF_CAF10_SF2	Patrick McDuff, California Fueling, LLC. Second 15-day Comment: January 21, 2021
SF_KK1_SF3	Kathleen Kelcey, unaffiliated Second 15-Day Comment: January 22, 2021
SF_WSPA2_SF4	Tiffany Roberts, Western States Petroleum Association Second 15-Day Comment: January 25, 2021
SF_CAF11_SF5	Patrick McDuff, California Fueling, LLC. Second 15-Day Comment: January 25, 2021
SF_CABA5_SF6	Rebecca Baskins, California Advanced Biofuels Alliance, Trent Trawick, California Advanced Biofuels Alliance, Floyd Vergara, National Biodiesel Board Second 15-Day Comment: January 26, 2021
SF_CAF12_SF7	Patrick McDuff, California Fueling, LLC. Second 15-Day Comment: January 27, 2021
SF_CRE3_SF8	Steve Bond, Crimson Renewable Energy, LLC Harry Simpson, Crimson Renewable Energy, LLC Second 15-Day Comment: January 27, 2021
SF_NL3_SF9	Jennifer Case, New Leaf Biofuel Second 15-Day Comment: January 27, 2021
SF_WE2_SF10	Caelin MacIntosh, World Energy, LLC Brian Sherbacow, World Energy, LLC Second 15-Day Comment: January 27, 2021
SF_EW1_SF11	Ed Ward, AB617 Steering Committee Second 15-Day Comment: January 27, 2021
SF_IWP3_SF12	Eric Kayser, Imperial Western Products, Inc. Second 15-Day Comment: January 27, 2021
SF_KO1_SF13	Melinda Palmer, Kern Oil & Refining Co. Second 15-Day Comment: January 27, 2021

B. Effective Date for Certification of Additives and Formulations

Comment: The proposed changes to the ADF regulations, changing the requirement for NOx Mitigant certification from April 1 to August 1, is a welcome change in the right direction, however, it still fails to account for the time necessary to conduct the research and development required to run a potentially successful ADF certification testing program. There simply is not enough time between the earliest effective date

of the proposed ADF (estimated to be April 1, 2021) and the proposed August 1, 2020 [*sic*] deadline. CARB need go no further than to consider its own most recent testing programs to agree with this conclusion. From start to finish, both the NOx Mitigant evaluation and the LED legacy engine program took over one-year [*sic*]. (SF_CAF9_SF1-1)

Comment: An initial complication to the timeline is the availability of compliant reference fuel. Cal Fueling has contacted reference fuel formulators regarding the components used to blend reference fuels "produced from straight-run California diesel fuel by a hydrodeamoratization [*sic*] process'?" The response from reference fuel formulators is they cannot ensure a manufactured reference fuel can meet the CARB requirement as written, let alone within the four-month window of time presented by the proposed ADF. The challenges associated with securing straight-run California CARB compliant diesel is well known by CARB. In fact, when CARB acquired the reference fuel to evaluate NOx mitigants and most recently the reference fuel for its Low Emission Diesel (LED) program, CARB knowingly did not use or require fuels "produced from straight-run California diesel by a hydrodeamoratization [*sic*] process."

…

If CARB is going to enforce its ADF language, they must consider the additional effort required to secure fuels that meet the ADF's requirements and consider the time associated to do so.
…

[I]f the ADF regulation is going to require straight-run California diesel, the time frame must be further adjusted to account for the time required for applicants, alone or via fuel formulators, to acquire fuels "produced from straight-run California diesel fuel by a hydrodeamoratization [*sic*] process." Obtaining small quantities of fuel from refiners to use in blending a reference fuel is a difficult process and will take additional time. (SF_CAF9_SF1-2)

Comment: Next, the timeline fails to take into consideration the availability of two facilities to conduct the required testing. Currently, we are aware of only two facilities that have CARB approved engines for the required testing, CE-CERT and WVU, whereas others have struggled to meet Cummins baseline emissions requirements. Under the best of circumstances, as evidenced by CARB's own testing programs, scheduling and completing testing at one laboratory, never mind two, within four months would be near impossible. (SF_CAF9_SF1-3)

Comment: Based on the proposed ADF's timeline and the required CARB interaction related activities, excluding COVID-19 related restrictions and impact, the proposed ADF timeline, based on each step's allotted time, will take approximately one hundred and thirty-seven (137) [over six (6) months!] business days as outlined following:

- Test protocol
  - 20 business days – deem the protocol complete or require more information
  - 15 business days – additional information
  - 20 business days – protocol approval
  - 7 business days' notice required before initiating engine testing
- Sample Shipment – Receipt and Verification
  - Estimated at 10 business days
- Verification Reports from Independent Observer
  - Estimated at 10 business days
- Certification Application
  - 20 business days – deem the protocol complete or require more information
  - 15 business days – additional information
  - 20 business days – protocol approval
- Total: 137 business days or 6.5 months

The above does not take into account the time leading up to certification testing such as reference fuel acquisition and formulation work, biodiesel acquisition, reference, unadditized candidate fuel and additive screening. These items alone can take as long as six (6) months and depending on CARB's response to reference fuel formulation requests, they may take longer. CARB should allow more time for NOx Mitigant stakeholders to conduct a proper certification program. Any other response would be unreasonable. (SF_CAF9_SF1-6)

Comment: WSPA supports extending the date by which NOX control additives have to be recertified. WSPA recommended a deadline not sooner than December 31, 2021 in its prior comment letter from October 29, 2020[3] and WSPA continues to support this later deadline to allow time for NOX control additives to be recertified.

[3] WSPA CARB ADF Comment Letter Submitted October 29,2020. Available at: https://www.arb.ca.gov/lispub/comm/bccomdisp.php?listname=adf2020&comment_num=24&virt_num=4. Accessed January 2021. (SF_WSPA2_SF4-1)

Comment: WSPA requests that CARB allows the use of new formulations pursuant to Appendix 1 (a)(1)(B), with at least 55% renewable diesel and 20% biodiesel, as soon as the new regulation is approved rather than August 1, 2021, as this would help supply a larger volume of renewable fuel with no negative impact on NOX emissions. (SF_WSPA2_SF4-2)

Comment: The extended phase out date from April 1, 2021 to August 1, 2021 for currently certified NOx additives and formulations is a step in the right direction, but

this additional time will only delay the problems that will be faced by many in the Biofuels industry. I can state that IWP's current vendor for the NOx additive has ceased production on their additive and will not have additional volumes available. This will essentially end discretionary blending above the seasonal blend allowances well before August 1, 2021.

IWP along with other California producers and distributors outlined this exact problem in our original ADF Comments that were submitted on April 22, 2020. Since that time, the scenarios in those comments have been playing out just as predicted. (SF_IWP3_SF12-1)

Comment: Kern is specifically providing comments on the proposal to extend until August 1, 2021, the date after which only approved ADF formulations or biodiesel additives certified under the proposed amendments can be used to comply with biodiesel in-use requirements. Kern supports CARB's extension of the compliance date beyond the originally proposed April I, 2021, but strongly encourages CARB to consider more appropriately setting the compliance date to April 1, 2022, or one year from the effective date of the amendments.

…

The compliance date must realistically reflect a reasonable amount of time for additive manufacturers to complete the newly proposed, rigorous certification process. Absent approved additives, Kern and other blenders will have no choice but to cease blending beyond the five percent biodiesel allowed in CARB diesel, eliminating significant volumes of biodiesel currently entering the California marketplace as B20. Kern is concerned such a scenario could degrade relationships with customers and place strain on existing contracts for B20 blends. Furthermore, a reduction in biodiesel blending, even if temporary, is counterintuitive to CARB's goals for increasing the use of low-carbon fuels in the state. Kern halting its B20 blending for even six months until a new additive is certified would result in the missed opportunity for Californians to have eliminated over 10,000 metric tons of transportation-related greenhouse gas emissions.

In conclusion, Kern appreciates CARB's consideration of this request to extend the effective date for in-use additive requirements. (SF_KO1_SF13-1)

> **Agency Response:** Staff appreciates commenters' support of the modification to extend the effective date for certification of additives and ADF formulations in accordance with the amended certification requirements beyond April 1, 2021. But CARB rejects commenters' recommendations that that effective date be extended beyond August 1, 2021, for the reasons explained below.

The initial proposal for the ADF regulation amendments included an effective date of January 1, 2021, which was postponed to April 1, 2021, in the first 15-day amendments. However, stakeholder comments since release of the first 15-day amendments indicate that given the new certification process and the extended regulatory development timeline, even an April 1, 2021, certification deadline may not be sufficient for regulated entities to come into compliance with the amended requirements. Based on that stakeholder feedback, staff determined that an August 1, 2021, effective date would sufficiently balance the logistical concerns raised in support of granting additional time to undergo certification under the new procedures against the need to act swiftly to avoid potential increases in NOx from continued use of ineffective additives. For more information regarding staff's selection of the August 1, 2021 effective date, please refer to section D-2 in Chapter IV.

The use of new formulations pursuant to Appendix 1(a)(1)(B), with at least 55 percent renewable diesel formulations, will be allowed when the amended regulation becomes effective. Effective August 1, 2021, in addition to those additives and ADF formulations listed under section (a)(1), only biodiesel additives and ADF formulations approved or certified under the proposed amendments can be used to comply with biodiesel in-use requirements. During the period from the effective date of the amended ADF regulation to July 31, 2021, approved renewable diesel formulations and all previously approved EOs will be valid under the amendments.

For more information regarding the effective date for certification of additives and the basis of staff's proposal, please refer to response D-2 in Chapter IV and response D-9 in Chapter III, respectively.

For more information regarding other compliance options for use of biodiesel above the NOx control level, please refer to responses F-2 in Chapter III and D-2 in Chapter IV.

For information regarding impacts on the LCFS program, please see response F-2 in Chapter III.

For more information regarding the availability of compliant reference fuel, please refer to response D-3 in Chapter III.

For more information regarding certification laboratories and the feasibility of the proposed testing regimen, please refer to responses D-4 and response D-9 in Chapter III, respectively.

For more information regarding the basis for not including the LED study in this rulemaking please refer to responses B-4 and D-1 in Chapter IV.

C. Support of Modifications

Comment: The California Advanced Biofuels Alliance (CABA) and the National Biodiesel Board (NBB) thank you for extending the phase out date for currently certified NOx additives and formulations from April 1, 2021 to August 1, 2021. (SF_CABA5_SF6-1)

> **Agency Response:** Staff appreciates the commenter's support of the proposed modification.

Comment: World Energy commends CARB staff's commitment to ensuring that the ADF rulemaking process takes critical steps towards lowering NOx emissions from fuels. We encourage approaches that strengthen the program while implementing California's long-term climate goals. As such, we support CARB enabling the sale of these fuels at the earliest possible date.

World Energy has commercial arrangements in place to supply renewable diesel blends to the California market as soon as possible. Approval of the ADF will open the market to lower cost fuels that will provide California much needed and immediate NOx reductions. For these reasons, World Energy sees no further reason for delay and is [*sic*] recommends CARB finalize this rule. (SF_WE2_SF10-1)

> **Agency Response:** Staff appreciates the commenter's support of the proposed amendments.

D. Out of Scope

D-1. *Required Two Percent NOx Reduction for Certification of ADF Formulations Containing Renewable Diesel*

Comment: The proposed regulation includes the following requirement in the process for determining if the tested candidate fuel fulfills the requirements for certification: "The average NOx emissions during testing with a candidate fuel that contains renewable hydrocarbon diesel demonstrate at least a two percent reduction relative to the average NOx emissions during testing with the Diesel Test Fuel". WSPA requests that CARB specifies the expected content of renewable hydrocarbon diesel in a test fuel used pursuant as the proposed language is vague. (SF_WSPA2_SF4-3)

Comment:

2. Does either RD Formulation meet the >2% NOX emissions reduction required as part of the proposed ADF?

a. What testing was conducted in connection with each RD Formulation?

b. What specifically are the demonstrated NOx reductions from each RD Formulation?

c. Where is the resulting data? Why has it not been shared publicly?

3. If RD Formulations do not meet the >2% NOX emissions reduction required as part of the proposed ADF, or if CARB does not have data supporting such a conclusion, why is CARB putting forth such formulations? What is the environmental impact of the formulations? (SF_CAF11_SF5-3)

Comment:

2. Eliminate the **new** 2% NOx reduction requirement in Appendix 1, Subarticle 2, section (a)(2)(F) and (G) (and any other provision where it is expressed or implied); this new requirement was never discussed or proposed in the original 45-day proposed changes, was never considered by the Board at its April 2020 hearing, and is therefore outside the scope of the rulemaking. (SF_CABA5_SF6-4)

Comment:

- Eliminate the new 2% NOx reduction requirement in Appendix 1, Sub-article 2, section (a)(2)(F)and (G).

…

The 2% NOx Reduction Requirement is not Warranted

The purpose of the Alternative Diesel Fuel regulation is to achieve NOx-neutrality for alternative diesel fuels. The 2% reduction requirement for blends containing renewable diesel are mandating *additional* reductions beyond the required NOx neutrality.

Also, as stated by the National Biodiesel Board (the "NBB") in their previous comment, "a 2% additional NOx reduction is inconsistent with the NOx neutrality basis for the ADF regulation, and it was never discussed in the notice of proposed action for this rulemaking. Introducing this requirement as a 15-day change therefore conflicts with the California Administrative Procedure Act and the regulations adopted by the Office of Administrative Law (OAL) to implement that statute."

This requirement should be eliminated. (SF_CRE3_SF8-1)

Comment: Finally, we are very confused by the new 2% NOx reduction requirement that was not part of the original rulemaking, nor discussed with stakeholders. (SF_NL3_SF9-2)

Comment: These issues, along with staff adding a 2% NOx reduction requirement that was never consider by the board and appears to be completely outside the scope the rulemaking, would lead to IWP's recommendation that CARB rescind the proposed January 12, of 2021 modifications and actively work with stakeholders to find an equitable solution to the problems in this rulemaking. (SF_IWP3_SF12-2)

> **Agency Response:** These comments are beyond the scope of the proposed modifications identified in the second 15-day notice. For more information regarding the required two percent NOx reduction for certification of ADF formulations containing renewable diesel, please refer to response C-1 in Chapter IV.

D-2. *Certification Testing*

Comment: Of course, CARB's two facility, two fuel approach, in order to neutralize "reproducibility" concerns, continues to be unsubstantiated, questionable at best, given the variable nature of emissions testing. Repeatability seems to be more the issue; however, CARB need only look at their most recently conducted 2009 John Deere CE-CERT Low Emission Diesel (LED) testing not to mention CARB's previous CE-CERT work to evaluate NOx Mitigants, which we've addressed in a January 2020 public comment. The LED program, as with the NOx Mitigant evaluation, resulted in repeatability ranging from 2-4% depending on the fuel, reference or candidate. There's no way around emissions testing variability and as opposed to confronting this reality, CARB are penalizing NOx Mitigant stakeholders by proposing overly burdensome and costly multiple facility certification program. (SF_CAF9_SF1-4)

> **Agency Response:** These comments regarding the two-laboratory and two-fuel certification requirements are beyond the scope of the proposed modifications identified in the second 15-day notice.
>
> For more on the basis supporting the two-laboratory certification requirement, please refer to response D-1 in Chapter III.
>
> For more information regarding single lab, single fuel alternatives, please refer to response E-2 in Chapter III.
>
> For more information regarding concerns that proposed amendments could be burdensome, please refer to response D-2 in Chapter III.

For more information regarding how the proposed amendments address testing repeatability and reproducibility as demonstrated by CARB and CE-CERT's statistical analysis of the results from both the certification and confirmatory testing, please refer to response G-1 in Chapter III.

D-3. *Adequacy of Environmental Review*

Comment:

Subject: An Updated Environmental Analysis (EA) is Required

CARB's second 15-day notice states that "the current amendments to the ADF reg – the 'project' for CEQA purposes—do not require revisions to the 2018 EA because they do not involve new significant effects or a substantial increase in the severity of significant effects previously identified in the 2018 EA." That assertion is simply false, CARB knows it, and is attempting to justify its position on the claim that "[t]he proposed modifications are procedural, in nature, and do not alter the compliance responses as identified in the 2018 EA." Additionally, CARB's statement that "there is no new information of substantial importance related to this modification that shows new significant effects or previously identified significant effects that would be more severe" is once again demonstrably false.

In the 2018 EA CARB stated, "the public would be deprived"of [*sic*] a meaningful opportunity to comment upon a substantial adverse environment effect or a feasible way to mitigate or avoid such an effect" (CEQA Guidelines Section 15088.5[a]). As stated in CEQA Guidelines Section 15088.5(a), "significant new information" requiring recirculation includes: [a] new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented."[1] CARB brought the requirement to update the EA on themselves when, after conducting a rigged NOx Mitigant study, publicly stated 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." Furthermore, CARB issued Cal Fueling a letter stating the goal of the NOx Mitigant program "was to confirm, consistent with the emissions mitigation requirements of CARB's Regulation on the Commercialization of Alternate Diesel Fuels (ADF regulation), that additives certified pursuant to that regulation are effective at mitigating biodiesel NOx emissions to equivalence with CARB diesel", and that our products purportedly "failed to effectively mitigate to the regulatory standard."

[1] Appendix D, Final Environmental Analysis, Amendments to the LCFS and ADF Regulation, September 17, 2018, page 1. Available at: https://ww3.arb.ca.gov/regact/2018/lcfs18/finalea.pdf?_ga=2.46552423.1118190377.1612897040-1183844988.1589931069.

We vigorously dispute CARB's contentions, and after we highlighted just a few of the litany of problems with its testing program, CARB attempted to walk back their NOx Mitigant nonperformance statements in various forms. It nonetheless is bound by its own public statements challenging the general efficacy of all currently certified NOx mitigants. Most recently, CARB, in connection with its failed Motion to Dismiss filed in *Best Energy Solutions & Technology Corp vs California Air Resources Board*, Case No. BCV-20-102198, filed a declaration from its employee, Alexander "Lex" Mitchell, putting forward yet another viewpoint stating that, in regards to the CE-CERT test program, "CARB's primary programmatic concern supporting the testing was not whether Best's additive could be effective just once in one specific test scenario in order to support a certification, but whether the certified additive was effective in general." Setting aside our and Best's rejection of its findings, CARB has asserted that no currently certified NOx mitigant is "effective in general", which is the drive for the proposed ADF changes, it is axiomatic that CARB must update the 2018 EA based on CEQA requirements. Conversely, CARB can set the record straight by publicly indicating that VESTA® was "effective in general" and allow its Executive Orders to stand.

In July 2017, the Attorney General of California wrote the Supreme Court of California regarding the POET case. On page 5, the document states "CEQA requires than an agency 'use its best efforts to find out and disclose all that it reasonably can about the potential significant impacts of a project (Cal Code Regs., tit. 14, Section 15144)." CARB has stopped short of disclosing, as required by CEQA, the NOx Mitigant evaluation significant adverse impacts which they've publicly promoted. While CARB's unsubstantiated statements against VESTA® are not true, as evidenced by an overwhelming body of evidence to the contrary, it has stood by its views and must now quantify its NOx Mitigant findings environmentally via an updated EA. Alternatively, if it is prepared to recant its prior position regarding the efficacy of previously approved NOx mitigants, then the stated need for the onerous recertification process it has designed falls apart. CARB cannot have it both ways.

Questions:

1. If CARB is not confident that the previously approved NOx mitigants are "effective in general", how can it claim that the originally approved ADF regulation was adequate and the proposed changes are "procedural"?

2. Has CARB conducted an analysis of the impact on the environment if, in fact, the previously approved NOx mitigants, or any of them, are not "effective in general"?

…

In closing for the reasons noted herein, CARB's claim that the proposed ADF changes are procedural in nature, which in turn doesn't require an updated EA, is not factually correct. CARB are seeking to avoid drafting a new EA because it will reflect negatively

on their past actions and delay their effort to implement the proposed ADF. CARB cannot place its own best interest above that of the public, must update the EA based on its findings and finally consider the additional ramifications of the proposed ADF on not only the 2018 EA but also the 2017 SRIA which must also be updated. If CARB chooses not to do so they will be in clear violation of CEQA requirements. (SF_CAF10_SF2-1)

> **Agency Response:** This comment does not raise any issues with the proposed change to the certification compliance date for biodiesel additives or ADF formulations required under the proposed ADF regulations and, thus is beyond the scope of the proposed modifications identified in the second 15-day notice. For more information regarding the adequacy of environmental review for the proposed amendments and modifications, please refer to response D-1 in Chapter IV.

D-4. *Use of On-Going CARB Emissions Studies for NOx Emissions Analysis*

Comment: CARB's recent Low Emissions Diesel (LED) 2009 John Deere (legacy vehicle) emissions' study[1] (hereinafter, the "LED Program") confirms that a 65% RD, 35% biodiesel (ratio of 1.85) blend does not meet the proposed ADF's "new certification procedures" and standards. Appendix 1 of Subarticle 2. In-use Requirements for Pollutant Emissions Control (a)(2)(G)(1) states, "[t]he average NOx emissions during testing with a candidate fuel that contains renewable hydrocarbon diesel demonstrate at least a two percent reduction relative to the average NOx emissions during testing with the Diesel Test Fuel." (Emphasis added.) Using CARB's ADF statistical analysis to account for the proposed ADF formulation 2% NOx reduction requirement, both the D2 and NRTC cycles failed to meet CARB's proposed ADF NOx reduction requirement. Results for each LED Program cycle are provided on page 2. CARB cannot dispute using the D2 and NRTC cycles nor the John Deere engine given the internal and external debate about the representativeness and agreement to use such as indicated in the documents produced by CARB in response to Cal Fueling's Public Records Act ("PRA") request.

[1] http://www.californiafueling.com/documents/news_low_emissions.pdf

D2 Cycle

		x_R	x_C
NOx	AVERAGE	2.690	2.653
	STD. DEV.	0.047	0.017

x_R	+ δ	$-S_p$	* √(2/n) *	t(0.15,df)		x_R Adjusted
2.690	0.027	0.036	0.333	1.052	=	2.651

	x_C	<	x_R Adjusted
NOx	2.653	**Fail**	2.651

NRTC Cycle

		x_R	x_C
NOx	AVERAGE	2.801	2.788
	STD. DEV.	0.059	0.041

x_R	+ δ	$-S_p$	* √(2/n) *	t(0.15,df)		x_R Adjusted
2.801	0.028	0.051	0.333	1.052	=	2.755

	x_C	<	x_R Adjusted
NOx	2.788	**Fail**	2.755

Based on information received through the PRA process, it appears that CARB has used Cal Fueling's confidential trade secrets in the process of developing the LED Program (which will be the subject of separate legal proceedings, if necessary). In the absence of CARB issuing any type of LED Program report (which they informed us would occur by the end of 2020 made more egregious by the fact they've had the data since May 2020) for stakeholders to consider during the ADF rulemaking process, on January 18, 2021, Cal Fueling posted the LED Program emissions data on our web site (www.californiafueling.com). We have also posted a statistical analysis spreadsheet (updated on 1/22/21, engine repeatability results included). CARB has stonewalled Cal Fueling in response to our PRA request and continues to hold back critical information. Its slow walking response gives significant cause for concern because there's likely more data which does not support its proposed ADF. CARB should delay the proposed ADF rulemaking until it is 100% transparent with all stakeholders regarding the LED Program data.

CARB has stated that "[p]revious CARB certifications of ADF formulations have provided testing data that demonstrates the ability of various renewable diesel and biodiesel formulations to reduce NOx emissions and offset emissions from biodiesel blends below the NOx control level" and further that "staff relied on data from the 2009 study[2], data from prior CARB certified ADF formulations, and previous staff analyses on biodiesel and renewable diesel, to estimate the overall potential NOx emissions that could be a result of the proposed modifications." In a disingenuous attempt to justify RD Formulations, CARB references data obtained from (1) its now outdated 2009 study and (2) stakeholder ADF formulations' certifications, such data being inapplicable, as it was based on the now precluded Detroit Diesel Series 60 engine using a reference fuel formulation that does not meet the ADF's requirements. CARB's reliance on the forgoing has yet to be explained in light of its more recent LED Program. Ironically, CARB seem to value (1) and (2) above over the LED Program and an RD study, using one producer's RD, in new technology diesel engines (NTDE) indicating that RD <u>increases emissions</u> versus a CARB Diesel (hereinafter referred to as the "Karavalakis paper").[3] Furthermore, we are not aware of any emissions studies comparing different manufacturers' RD. CARB's cherry-picking data based on their preferred outcome runs entirely against the newly stated spirit of the proposed ADF - "[d]emonstration that use of the proposed ADF additive or formulation to mitigate NOx emissions is based on <u>sound principles of science and engineering.</u>"

[2] See "CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California, "Biodiesel Characterization and NOx Mitigation Study," Final Report." Durbin, et al. 2011. October, https://www.arb.ca.gov/fuels/diesel/altdiesel/20111013_CARB%20Final%20Biodiesel%20Report.pdf.
[3] "Emissions and Fuel Economy Evaluation from Two Current Technology Heavy Duty Trucks Operated on HVO and FAME Blends," SAE Int. J. Fuels Lubr. 9(1):2016, https://doi.org/10.4271/2016-01-0876.

Questions:

1. Has CARB considered the LED Program and Karavalakis paper in drafting the proposed ADF?

2. If not, why? Shouldn't the latest scientific evidence (LED Program and Karavalakis paper) be used as opposed to (1) and (2) above?

3. Does CARB concur that the LED Program emissions data does not meet the proposed ADF requirements necessary for an ADF formulation approval?

4. If not, why?

5. To date, CARB considered ADF Formulations to be proprietary, based on each manufacturers RD and would not allow anyone other than "Producers" to apply

for formulation certification. What's CARB's justification in allowing for this change given, to our knowledge, no studies have been conducted comparing different manufactures' RD emissions?

6. Has CARB conducted any RD compositional analysis confirming that all RD's are created equal, or for that matter, emission studies confirming that they react similarly across different feedstocks?

7. If not, how can CARB justify allowing any RD Formulation(s)?

The proposed ADF's "Approved ADF Formulations" are based on renewable diesel to biodiesel ratios of 3.75 (formulation 1) and 2.75 (formulation 2), both which limit the biodiesel content to 20%. These ratios are significantly higher than those tested and failed in the LED Program, whose data was compiled on a renewable diesel to biodiesel ratio of 1.85. As such, there's no technical basis for CARB to include the RD Formulations in the proposed ADF based on the LED Program data.

To fully understand the LED Program's gravitas, look at the testing circumstances. CARB (1) solicited assistance in formulating a "dirty as possible" reference fuel, (2) solicited assistance in selecting a "clean as possible" biodiesel which did not meet either the ADF's current or proposed requirements, and (3) selected a legacy engine (John Deere) that they felt would give the best possible emissions results. Notwithstanding CARB's efforts to manufacture a positive outcome, the results showed that a ratio of RD to biodiesel of 1.85 does not meet the proposed ADF's performance standard. In conclusion, there is no factual basis or justification, given what CARB knows, to include RD Formulations in the proposed ADF. Prior to the approval of RD Formulations, CARB must hold itself to the same standards it is seeking to impose on stakeholders and conduct ADF compliant testing that demonstrates efficacy under the same proposed "uniform certification standards."

…

4. Why has CARB failed to release any LED Program emissions results and report given they've had at least a portion (2009 John Deere) of the results and a CE-CERT Interim Report since May 2020?

5. What was the basis for CARB's decision to use as "dirty" as possible a reference fuel, and as "clean" as possible (high cetane) biodiesel, in its LED testing?

   a. Relatedly, in light of CARB's reliance on a biodiesel with cetane number over 56 in its LED Program, will CARB be similarly waiving the biodiesel 50 cetane cap for NOx Mitigant applicants under the proposed ADF regulation? If not, why is CARB using different standards for itself?

CARB's expressed view of the "Importance of Renewable Diesel as an Offsetting Factor"[4] is that "[t]he ADF regulation NOx mitigation framework relies on NOx emissions reductions from the use of renewable diesel to offset NOx emissions increases from biodiesel blends below the NOx control level (usually B5)." To date, based on the LED Program data, CARB has grossly overstated RD's NOx emission benefit by a two-fold factor. In the LED study, 100% RD reduced NOx 5.23% and 4.89%, respectively based on the D2 and NRTC cycles. RD results for each LED Program cycle are provided following.

[4] Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels – 15 day changes, Appendix B, "Staff Analysis of Renewable Diesel/Biodiesel Formulations and NOx Emissions", page 3.

D2 Cycle

		X_R	X_C
NOx	AVERAGE	2.690	2.550
	STD. DEV.	0.047	0.019

NRTC Cycle

		X_R	X_C
NOx	AVERAGE	2.801	2.664
	STD. DEV.	0.059	0.051

On the average, based on the LED Program, 100% RD reduces NOx just over 5% versus CARB diesel. CARB has stated "[s]ufficient volumes of renewable diesel not used to mitigate biodiesel NOx above the control level must be available to fully offset NOx emission increases from biodiesel blends below the NOx control level". Given CARB's overstated RD NOx reduction benefit, the volume of RD required to neutralize NOx from biodiesel blends below the seasonal allowances is double that previously stated. Clearly, CARB must re-state their past findings and correct its future estimates.

Cal Fueling has estimated that 500 million gallons of RD is required to neutralize NOx from B5. Based on RD's actual use over the last four quarters and considering the 5% RD NOx emission benefit not 10% as previously assumed, there is minimal RD available for use in blends above the seasonal allowance to neutralize NOx. In a desperate attempt to offer stakeholders a NOx Mitigant option, because of their unjustified and careless effort to craft a proposed ADF revoking all current NOx Mitigant Executive Orders, CARB are egregiously overstating both the volume of RD available for NOx mitigation and the actual reduced NOx that RD Formulations would deliver. 500 million gallons of RD is required to neutralize the NOx From B5, considering that over the last four (4) quarters 580 million gallons of RD was consumed, then only 80 million gallons of RD would be available for use in RD Formulations. Best case, in order for biodiesel volume not to go down, 61 million of

the 80 million gallons of RD would need to be used in RD Formulation 1 (61 million * 3.75 = 229 million gallons of biodiesel which equates to the last four quarters biodiesel consumption). CARB has no market distribution control of RD and hence CARB's offset factor rationale does not hold water and, in fact, is impossible. Conversely, the proposed ADF's RD Formulations will result in NOx increases because RD does not reduce NOx at the level previously indicated by CARB based on the most recent LED Program data.

Questions:

1. How will CARB be addressing its overstated RD offset factors (emissions reductions benefits) on B5?

2. Does CARB plan on updating their RD volume and offset viewpoints (as compared to the calculations above) for RD Formulations, past and future?

CARB appeared to have the greatest intent when they crafted the original ADF. The NOx Mitigant certification process, at the time, was rigorous and left the door open for CARB to shape the regulation as necessary to meet all stakeholder requirements. However, something went drastically wrong and CARB's missteps, poor decisions and over corrections have led us to where we are today. CARB are seemingly unwilling or incapable of accepting responsibility for their actions. CARB is already in the midst of defending itself in a lawsuit filed by another stakeholder, which is likely not the last lawsuit CARB will face as a result of its improper actions in connection with the ADF. While there are many aspects of the proposed ADF that represent a positive step forward in CARB's mission, the bulk of the regulations continue to be plagued by bad science and lack of recognition of the marketplace. Instead of moving forward with the current flawed regulations, CARB should reengage with stakeholders to draft an ADF proposal that is grounded in science, equitable for all stakeholders, and, most of all, is transparent in its impact on the California environment. (SF_CAF11_SF5-1)

> **Agency Response:** This comment does not raise any issues with the proposed change to the certification compliance date for biodiesel additives or ADF formulations required under the proposed ADF regulations and is, thus, beyond the scope of the proposed modifications identified in the second 15-day notice. For more information on staff's response regarding use of on-going CARB emissions studies for NOx emissions analysis, please refer to response B-4 in Chapter IV.

D-5. *Approval of ADF Formulation*

Comment:

Questions:

1. What is CARB's technical basis for including RD Formulations in the proposed ADF? (CAF11_SF5-2)

Agency Response: This comment is beyond the scope of the proposed modifications identified in the second 15-day notice. For more information on technical basis for including approved renewable diesel formulations in the amendments to the ADF regulation, please refer to responses C-1 and C-2 in Chapter III and response B-1 in Chapter IV.

D-6. *Other Compliance Options*

Comment: As we have explained to staff numerous times, Renewable Diesel is not available to small companies to meet the compliance obligations either. (A mass balance approach would be a much more workable option). (SF_NL3_SF9-1)

Comment: The ADF offers limited compliance paths, each of which have significant impediments to practical implementation, leaving Kern and other blenders in wait for new additive certifications. ADF formulations containing high proportions of renewable diesel with up to 20 percent biodiesel and the remaining fraction of CARB diesel, look promising on paper, but are not realistic when supply and logistical constraints are appropriately considered. It is unclear whether CARB' s analysis of available renewable diesel supply in the state factors in location, access, sufficient storage tank availability/capacity, or other market demands for neat renewable diesel. Kern would need to identify additional storage capacity at least triple the volume of current biodiesel storage capacity for practical implementation of producing an ADF formulation. Similarly, multiple complexities in the practical use of DTBP effectively eliminate this product as a viable compliance option, examples of which include chemical instability, onsite handling and storage requirements, and conditions/limitations on shipping and receiving. (SF_KO1_SF13-2)

Agency Response: This comment is beyond the scope of the proposed modifications identified in the second 15-day notice. For more information regarding other compliance options for use of biodiesel above the NOx control level, please refer to responses F-2 in Chapter III and D-2 in Chapter IV. For more information on staff's assessment regarding renewable diesel and biodiesel availability, please refer to response C-3 in Chapter III and B-3 in Chapter IV. For more information regarding a potential mass balance approach, please refer to section C-4 in Chapter III.

D-7. *Multi-laboratory Requirement for Certification of Additives and Formulations*

Comment: In its April 2020 hearing, the Board directed staff to engage stakeholders to develop a workable and simplified certification process in response to the serious concerns raised by CABA, NBB, and a number of its members, as well as other stakeholders. The Board's direction was clearly aimed at simplifying the certification process, along with addressing a number of other issues. Instead, the proposed modifications released in October 2020 further complicated the already-convoluted certification procedure.[1] In order to address our concerns with the previous modifications, we ask that CARB withdraw the proposed January 12, 2021 modifications so that staff can work further with stakeholders to develop a workable certification procedure and address the other issues we raised previously. As we discussed in detail in our previous comments, CABA and NBB continue to recommend that CARB:

1. Revise the proposed changes to replace the screening procedure with a simplified, single-lab/engine/fuel standardized certification procedure that can be applied by anyone seeking certification for their blend/formulation, particularly for blends and formulations for which CARB had not previously identified any issues.

[1] https://ww3.arb.ca.gov/board/mt/2020/mt042320.pdf; pg. 11

…

4. Work with stakeholders to develop and implement a scientifically valid, round-robin testing program to replace the recently-approved 2-lab procedure and the proposed new 3-lab screening process. (SF_CABA5_SF6-2)

Comment: Initially, at page 114 of the transcript, in response to Ms. Mitchell's stated concerns about the extensive number of issues raised by stakeholders, Mr. Corey states,

> "I, too, would distill down the primary issues as being the lab testing -- the two- lab testing element that's been brought up several times, as well as really the preapproved status for the RD -- the renewable diesel, biodiesel blend mix."

Thereafter, he notes that,

> "I think there is room to go there, because -- and this is a suggestion, with respect to **testing is dynamic**. **The wealth of testing data is moving very quickly. And a reg, for instance, that hardwires the**

two-lab element in it doesn't provide as much flexibility in terms of making adjustments going forward."

At first, Mr. Corey hit the nail on the head and, as we've stated multiple times, confirms our concerns about emissions testing variability and the rigidity of the proposed ADF's two-facility approach. Appendix 1, section (a)(2)(F)(2)[2] of the proposed ADF, although represented as a one- facility approach, is, on an even cursory review, actually a three-facility testing requirement. In order to conduct certification testing at one facility, one must conduct emissions testing at three facilities in order to determine which of the three CARB finds suitable to use for certification testing based on fabricated criteria which has no technical justification. While representing a purported one facility approach, CARB instead went the other way, putting forward what amounts to a three-facility approach.

[2] "Proposed Second 15-Day Modifications", Appendix 1 of Subarticle 2. In-use Requirements for Pollutant Emissions Control, Sections (a)(2)(F)(1-5).

At pages 114-115 of the transcript, Mr. Corey states,

> "So a suggestion in the context of 15-day changes could be discretion, delegation, to the Executive Officer **to respond to that growing body of data and make adjustments as appropriate in terms of the -- moving the two lab to one lab**, for instance, as well as the previously defined status of the RD -- the renewable diesel biodiesel blend."

Again, Mr. Corey stated in no uncertain terms that CARB would explore "moving the two lab to one lab"! In approving the resolution based on this representation, we don't believe that Mr. Corey contemplated, nor was the Board approving, the approach in the current iteration of the proposed regulations that an applicant would, in actuality, need to test at three facilities in order to be able to conduct certification testing at one facility. This is clearly at odds with the simplified approach (true one facility) discussed between the Board and Mr. Corey. Requirement (a)(2)(F)(2)(a)(ii)(3) is an impractical appeasement option that makes zero technical sense and one that the Board would see right through and, in light of comments from the Board, not approve.

Specifically, I note that at Page 115, Mr. Corey states,

> "The path that I'm describing would position the Board to still be able to vote today on the resolution, providing that's the direction that they provide to staff. So I'll stop there." Thereafter, Vice Chair Berg recommended to "give the Executive Officer the discretion on both the lab and on the blending issue," (i.e., the number of laboratories required for certification testing, and lower renewable hydrocarbon diesel blend ratios for approved ADF formulations).

However, Ms. Berg specifically noted that,

> "Understanding lab testing from a manufacturer perspective and needing to rely on those tests, I haven't passed -- **two is not necessarily better than one. I think it's really important for us to understand where the breakdowns are and try to resolve from the breakdowns.** So I appreciated Mr. Corey's suggested resolution to be able to move this forward on both the blending and particularly the lab [support of chain of custody changes]. **I'm really, uncomfortable with the two lab, not because it's two labs necessarily, but I don't truly understand nor see that as a solution to the problem, because we're not really clear -- other than we know that we need better results in testing and to allow certifications to match real world, I'm not clear on what other steps really need to be resolved.** And so I would support and would offer to fellow Board members that we would move forward and give the Executive Officer the discretion on both the lab and on the blending issue **for further time to work with industry stakeholders**."

While the Board "approved for adoption the proposed amendments", staff has completely ignored the caveats that came with that approval. It's abundantly clear from Ms. Berg's statements that she had serious concerns about a two-facility approach, such that it is completely unrealistic to suggest that she, or the rest of the Board, would approve what amounts to a three-facility approach masqueraded as a one-facility option.

Questions:

1. Has CARB staff discussed with any of the new Board members imposing a de facto three-facility approach as a way of addressing the concerns raised by the public and the Board with the two-facility approach? If not, why?

2. How does CARB reconcile the concerns raised regarding a two-facility test scheme with offering a de factor three-facility testing regime? (SF_CAF12_SF7-1)

Comment: CARB's proposed ADF states "[t]he NOx emission criterion for acceptability of single-engine testing is as follows:

> (100%)[xB20/xD)Engine 1 – (xB20/xD)Engine k] ≤ 1.00%"

The current ADF proposed wording penalizes test facilities that have the required "[r]easonably adequate quality assurance and quality control procedures" resulting in good repeatability. Third-party test facility's with good repeatability may be precluded from conducting certification testing as a result of CARB's current ADF proposal. The requirement to compare engine to engine emissions test results on a

percentage basis has no technical justification and has seemingly been inserted to give the impression CARB is offering a single facility alternative, which it is, but the proposed ADF as written doesn't make sense. In order to run certification testing at one-facility [*sic*] you must first test at three facilities to determine the one facility that meets CARB's criteria. CARB should consider an additional approach, whereby if a testing facility's repeatability is within a certain range for <u>all</u> fuels tested, then those single facility results are acceptable to CARB without having to perform verification testing at any additional testing facilities. Such an approach can meet CARB's repeatability concerns while offering a true one facility approach.

…

As we've noted, engine testing is variable. Increasing the number of engines used for emissions testing will not change that. As it pertains to the ADF, CARB has done all its testing at one facility, CE-CERT, and never on multiple engines of the same type either at the same or different facilities.

…

CARB should consider removing the multiple engine requirement until further discussions with stakeholders. (SF_CAF9_SF1-5)

<u>Comment</u>:

- Revise the proposed changes to the test protocol to replace the screening procedure with a simplified, single lab/engine/fuel standardized certification procedure.

…

- Work with stakeholders to develop and implement a scientifically valid, round-robin testing program to replace the recently approved 2-lab procedure and the proposed new 3-labscreening process.

…

Simplify the Certification Procedure

The proposed modifications include a Single Engine, Single Emissions Test Facility certification testing that requires engine acceptability to be performed at a minimum of three Emission Test Facilities. Then, based on the results, the Executive Officer will determine which engines and Emission Test Facilities are acceptable for single engine, single Emission Test Facility certification testing. Like the 2-lab certification process that was previously brought before the Board in April with objections from several

stakeholders, this certification process is unprecedented, needlessly complex and expensive.

We ask that you revise the proposed changes to replace the screening procedure with a simplified, single-lab/engine/fuel standardized certification procedure that can be applied by anyone seeking certification for their blend/formulation, particularly for blends and formulations for which CARB had not previously identified any issues. (SF_CRE3_SF8-2)

> **Agency Response**: This comment is beyond the scope of the proposed modifications identified in the second 15-day notice. For more information regarding suggestions to replace the two-laboratory procedure with round robin testing, please refer to response D-1 in Chapter III. For more information regarding suggestions to simplify the certification procedure, please refer to response C-2 in Chapter IV.

D-8. *Public Process*

Comment: Furthermore, staff have not worked with industry stakeholders and if they have it's been behind close [*sic*] doors with those they prefer to work with instead of in open forums. The workshop conducted in June 2020 after the Board meeting was a one-way communication from CARB, which lead to the first 15-day notice after which came stakeholder unanimous dissent with the proposed ADF certification testing procedures. There remains a gap between staff, Mr. Corey and the Board and stakeholders and one need look no further to confirm this than to read the transcript and comments submitted after the first 15-day notice. Since then, the Executive Officer, based on staff's latest proposal, has not sufficiently considered nor addressed either the RD formulations or the certification testing concerns as directed by the Board. Regardless of the existing Resolution 20-2 given the ongoing divide between stakeholders and CARB, a public hearing should be conducted on the proposed ADF so that the new Board can adopt or reject it.

Questions:

1. In what way has CARB followed through with the Board's instructions to work with stakeholders to address the concerns raised in the proposed regulations?

2. Has CARB spoken with any NOx Mitigant providers in an effort to understand their concerns with the proposed ADF? If not, why?

3. Why has CARB not planned to conduct a further public hearing, especially in light of the overwhelming objections to the proposed regulations?

…

Considering all of the above, we believe Mr. Spearling's [*sic*] comment sums it up – there's a need for the Board to see the detail and underpinning of the proposed ADF as it stands today which is a long way, in the wrong direction, from where it stood it April 2020. For CARB to advance forward with its independent recommendations without considering any of what stakeholders have offered is an injustice to all. Worse yet, staff have not done what the Board asked which is exactly why an open public hearing in front of the new Board is required. If CARB staff is confident about its approach, you would think that it would have no concern with presenting it to the Board for consideration in full, especially given the proposed regulations potential ramifications on the future of two of the leading replacements of fossil fuels. (SF_CAF12_SF7-2)

Agency Response: This comment is beyond the scope of the proposed modifications identified in the second 15-day notice. For more information regarding the public process for the amendments to the ADF regulation, please refer to response H-1 in Chapter III. For more information regarding Board approval of the amendments to the ADF regulation, please refer to Chapter I.

D-9. *Retention of R75 B20 Approved ADF Formulation Regulatory Language*

Comment:

2. Simplify the Approved ADF Formulations provision by eliminating the superfluous R75/B20 language in Appendix 1, section (a)(1)(B)1. and including only the new language for R55/B20 language in section (a)(1)(B)2. (SF_CABA5_SF6-3)

Agency Response: This comment is beyond the scope of the proposed modifications identified in the second 15-day notice. For more information regarding the retention of the R75 B20 approved ADF formulation regulatory language, please refer to response B-2 in Chapter IV.

D-10. Impacts to LCFS

Comment: CABA and NBB promote the increased use of advanced biofuels in the state and like CARB, our goal is to displace petroleum with alternatives like our drop-in, low-carbon fuels. Unfortunately, the changes introduced into this regulation under the current rulemaking could ultimately limit the amount of biodiesel and renewable diesel used in California. As we have noted previously, biodiesel and renewable diesel have provided the lion's share (45% in 2018 and 2019) of the carbon reductions and credits in the state's Low Carbon Fuel Standard (LCFS) program. Thus, any disruption in the biodiesel and renewable diesel markets can have significant adverse impacts on California's efforts to combat climate change. Further, disruptions in biodiesel and renewable diesel

volumes will adversely affect California residents, particularly vulnerable populations in the various minority and low-income disadvantaged communities around the state who benefit greatly from the immediate reductions in diesel particulate matter and other co-pollutants that biodiesel and renewable diesel provide immediately upon use.

The biomass-based diesel industry is a vital part to California's low-carbon future, and potentially significant disruptions in this industry must be avoided. (SF_CABA5_SF6-5)

> **Agency Response:** This comment is beyond the scope of the proposed modifications identified in the second 15-day notice. For more information regarding potential impacts on the LCFS program and effects on vulnerable populations in disadvantaged communities, please refer to responses F-2 in Chapter III and B-3 in Chapter IV, respectively.

D-11. *Repeatability and Reproducibility*

Comment: Cal Fueling and others (for example, the National Biodiesel Board ("NBB") and the Engine Manufactures Association ("EMA")) have all raised concerns about staff's misperceptions of emission testing variability, including reproducibility and repeatability. In response, staff have incorporated a requirement for lab-to-lab reproducibility to be within 1% in order to run certification testing at a particular facility. Staff's most recent work at CE-CERT wouldn't meet such a requirement based on repeatability never mind reproducibility. As we've pointed out in a separate submission, there's no technical basis for such a requirement and staff hasn't justified it. While we eagerly await staff's response in the Final Statement of Reasons, it will likely be without substance because there is no rational response that's technically justified. In essence, staff have done nothing to clarify their variability concerns and instead have jumped to an illogical end game.

…

Mr. De la Torre links "lab discrepancy" in the Volkswagen matter with the proposed ADF changes. If this insinuation alone isn't enough to demand staff drill down into emissions test results to understand the inherent variability thereof, and determine what's acceptable and what's not, then its readily apparent that staff are unwilling to address this challenge and instead are pushing these responsibilities on to stakeholders.

Questions:

1. What additional testing has been done, or research reviewed, to ascertain the scope of the lab discrepancy issue and the proper methodology for addressing the same?

2. If none, on what basis is staff recommending the proposed ADF changes? (SF_CAF12_SF7-3)

Agency Response: This comment is beyond the scope of the proposed modifications identified in the second 15-day notice. For more information regarding certification testing repeatability and reproducibility, please refer to responses D-1 and G-1 in Chapter III.

D-12. *Economic Analysis*

Comment: Moreover, while not directly related to the timeline, costs associated with this effort must be taken into account, as the cost of the what amounts to bespoke fuel would dramatically increase the costs of any certification program. (SF_CAF9_SF1-2)

Agency Response: This comment is beyond the scope of the proposed modifications identified in the second 15-day notice. For more information regarding costs of the proposed certification testing and other economic impacts, please refer to response F-1 and F-3 in Chapter III.

D-13. *Other Comments Beyond the Scope of the Second 15-Day Notice*

Comment: I have copd which means I have trouble breathing. I grew up in L A before smog regulations existed. Prior to LA I live [*sic*] in Minneapolis and we had a coal furnace. In adulthood I taught first grade and my classroom was adjacent to the bus yard. Buses started befor [*sic*] 7:00 am for their 7:30 runs. I was in my classroom at this time most days. In the afternoons the process was similar for the =return [*sic*] trips. Again I was in my classroom. Today I am extremely sensitive to diesel fumes even from the modern diesel vehicles. Please do all you can too [*sic*] limit the poisons emitted. Thank yo u [*sic*]. (SF_KK1_SF3-1)

Comment: Biomass diesel has the potential to immediately reduce emissions in impacted communities. It is important to follow the latest compression engine technology. There are engines that meet tailpipe standards today and the newest tailpipe standards proposed in the near future. The American Lung Association is a partner in 49 states with the National Biodiesel Board. There scientific evaluation is biomass fuel is key to cleaner air. The real question is do other technologies and fuel alternatives have the potential to bring relief today to impacted communities? CARB should be in the business of clean air, not choosing the mythology to get to clean air. (SF_EW1_SF11)

Agency Response: These comments are not related to the proposed amendments and are beyond the scope of the proposed modifications identified in the second 15-day notice.

VI. Peer Review

Health and Safety Code section 57004 sets forth requirements for peer review of identified portions of rulemakings proposed by entities within the California Environmental Protection Agency, including CARB. Specifically, the scientific basis or scientific portion of a proposed rule may be subject to this peer review process. CARB determined that the rulemaking does not contain new scientific basis or new scientific portions subject to peer review requirements set forth in section 57004, and thus no new peer review is need to be performed.