



March 7, 2022

California Air Resources Board  
1001 I Street  
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By Electronic Mail

Thank you for the opportunity to provide comments on the February 15, 2022, public health workshop conducted as part of the 2022 Greenhouse Gas (GHG) Reduction Scoping Plan Update (Scoping Plan Update). Clean Fuels Alliance America (Clean Fuels) has been a long-time supporter of California's aggressive climate programs, especially the Low Carbon Fuel Standard (LCFS). We believe further strengthening of the LCFS,<sup>1</sup> including accelerated and deeper carbon intensity reduction targets above and beyond the current 2030 targets, will help ensure that California achieves both its near and long-term climate objectives as well as substantially reducing toxic air pollution. This is critical for improving public health in California, especially for residents in disadvantaged or environmental justice (collectively "EJ") communities.

Clean Fuels (formerly National Biodiesel Board) is the U.S. trade association representing the biodiesel and renewable diesel<sup>2</sup> fuel supply chains, including producers, feedstock suppliers, and fuel distributors. Clean Fuels has been fully supportive of efforts to address climate change at the federal and state level and has been a strong partner in California, Oregon, Washington state, and many other states that have developed or are exploring programs to reduce climate impacts from the use of petroleum fuels. We applaud California's continued leadership in holistically integrating climate policies, air pollution reduction measures, environmental justice (EJ), and public health.

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<sup>1</sup> These comments are intended to supplement and amplify our January 7, 2022, comments on the LCFS Concepts recently workshopped by CARB. See NBB and CA Advanced Biofuels Alliance (CABA) Comments to Cheryl Laskowski, <https://www.arb.ca.gov/lists/com-attach/125-lcfs-wkshp-dec21-ws-BWsCZIY1U18LbFM9.pdf>.

<sup>2</sup> Biodiesel and renewable diesel are sustainable liquid biofuels that are drop-in replacements for petroleum diesel in virtually all mobile and stationary applications; both are made from waste oils and fats such as used cooking oil, rendered animal fats, and tallow, and byproduct oils derived from protein production from soy, canola, and other crops.

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We offer the following recommendations for CARB's consideration:

- 1) The Scoping Plan Update should place the highest priority on those measures and policies that achieve the deepest and fastest reductions in emissions of both greenhouse gas (GHG) and toxic air pollutants, particularly diesel particulate matter.
- 2) The Scoping Plan suite of measures and targets should aggressively apply an "all-of-the-above" strategy, employing to the greatest extent feasible both electrification and non-electrification decarbonization policies (e.g., displacement of petroleum with non-petroleum biofuels), rather than simply focusing on electrification as a one-size-fits-all approach.

### Addressing Climate Change Effectively Is a Time Critical Issue

To reach the state's climate objectives, it is important not just to consider the magnitude of GHG emissions that are needed to reach those targets but also the amount of time it will take. It must be emphasized that to meet these goals, new (i.e., fossil) carbon emissions must be eliminated or reduced to the maximum extent feasible and as quickly as possible in order to address climate change effectively. The Intergovernmental Panel on Climate Change (IPCC) recently released its latest report (AR6) amplifying the need for quick and effective actions to reduce GHG emissions to reduce the worst effects of climate change<sup>3</sup>. The use of petroleum fuels in transportation continues to be the largest source of anthropogenic emissions in California and other states, so strategies to address climate change and achieve carbon neutrality as quickly as possible must have, at a minimum, the goal of eliminating, or reducing to the maximum extent feasible, the use of petroleum fuel<sup>4</sup>.

### The Scoping Plan Should Prioritize the Deepest and Fastest Reductions of GHGs and Toxic Air Pollutants

As CARB recognizes, the LCFS continues to be one of its most effective climate policies, reducing nearly 16 million tons of carbon emissions in 2020 alone. While the current LCFS carbon intensity reduction target of 20% by 2030 is aggressive, we believe even more stringent CI reduction targets are feasible in the 2025-2035 timeframe. Indeed, Oregon has leapfrogged California and is now pursuing the most aggressive CI reduction target in the U.S. for transportation fuels, a 25% reduction by 2035. But even that standard can be further strengthened. By ratcheting down the CI targets even more, we believe states like

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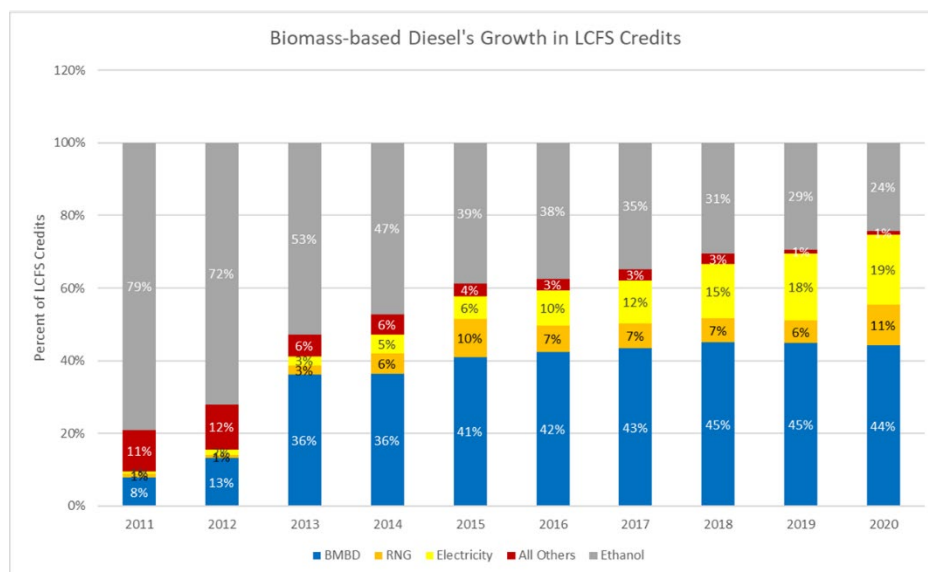
<sup>3</sup> IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press. In Press.

<sup>4</sup> The transition from petroleum fuel use in transportation and other sectors has been identified as a priority objective in Governor Newsom's Executive Order N-79-20 and other related executive orders.

California and Oregon can enhance the strong market signals already generated by their clean fuel programs, thereby further incentivizing innovations that can bring more alternative and sustainable fuels to these states.

According to LCFS program data, biodiesel and renewable diesel have among the lowest carbon intensity scores of liquid fuels used in the state,<sup>5</sup> reducing GHG emissions by up to 80% or more relative to petroleum diesel. As Figure 1 shows, biodiesel and renewable diesel are providing the lion's share of carbon reductions under the LCFS (approximately 45% of the reductions in 2018, 2019, and 2020; 42% overall since the start of the program in 2011, the single largest source of GHG reductions under the LCFS). Indeed, the positive attributes of biodiesel and renewable diesel have enabled these diesel replacements to grow from a mere 14 million gallons in 2011 to 900 million gallons in 2020, the last year with complete LCFS data. These sustainable low carbon diesel substitutes have been so successful in California that they now comprise over a quarter (27%) of every gallon of on-road diesel fuel used in the state and are expected to continue on a growth trajectory.

Fig. 1 Critical Role of Biomass-Based Diesel (BMBD) Under the LCFS<sup>6</sup>



Rather than simply maintaining the status quo, the Scoping Plan should encourage and facilitate even greater and faster displacement of petroleum diesel via the LCFS while it continues to pursue electrification in most sectors. The GHG reductions provided by biodiesel and renewable diesel are occurring in the most difficult to decarbonize sectors: heavy duty on- and off-road vehicles, marine, and rail applications. Using these drop-in renewable biofuels prevents substantial amounts of new carbon from entering the atmosphere vis-à-vis petroleum crude oil extraction, diesel production and use. In 2020

<sup>5</sup> [https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/current-pathways\\_all.xlsx](https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/current-pathways_all.xlsx).

Carbon intensity (CI) means the sum of all significant well-to-wheel or seed-to-wheel lifecycle GHG emissions, expressed in grams of carbon dioxide equivalent per megajoule of fuel energy (g CO<sub>2</sub>e/MJ).

<sup>6</sup> California LCFS Q1 2021 Summary, July 2021.

alone, the use of biodiesel and renewable diesel reduced GHG emissions by 6.8 million metric tons.

Those millions of metric tons in carbon reductions occurring today are no trivial matter. Because of the "time value of carbon," preventing 6.8 million metric tons of new (fossil) carbon emissions from entering the atmosphere today is much more impactful than reducing the same amount 10, 20, 30, or more years down the road. Even with CARB's aggressive electrification measures, such as the recently adopted Advanced Clean Truck regulation, deep electrification in the medium and heavy-duty vehicle sector is expected to take many years, if not decades. And electrification of marine and rail is expected to take even longer, to the extent it happens at all.

### Biofuels like Biodiesel and Renewable Diesel Provide Substantial Public Health Benefits While Reducing GHGs

The benefits from petroleum diesel substitutes are not limited to GHG reductions. Biodiesel and renewable diesel enable deep reductions in toxic pollutants produced by older, legacy vehicles and equipment as well. This is especially true for diesel PM emissions, which are of particular relevance to residents in EJ communities. Such communities are often located near sites where diesel PM emissions are high (railyards, logistics, agricultural activities, etc.) and would therefore benefit greatly from near-term reductions in PM. Biodiesel and renewable diesel can reduce PM emissions from legacy vehicles and equipment by 50 to 80 percent<sup>7</sup>, and those reductions can be achieved immediately upon use, with little to no changes in infrastructure, and at little to no extra cost to consumers.

That high degree of PM reductions can translate to substantial public health benefits. To quantify these benefits, Clean Fuels commissioned a study in 2021 to model the public health benefits of switching to biodiesel in 13 sites across the country, including four in California.<sup>8</sup> From that work, it is estimated that switching to biodiesel at those locations (see Figures 2, 3, 4, and 5) would provide:

- 42-45% reduction in cancer risk (up to 365 fewer cancers over 70-yr)
- 230 premature deaths avoided per year
- 149,000 reduced asthma attacks per year
- 31,000 fewer sick days per year
- Over \$2 billion in avoided health costs per year.

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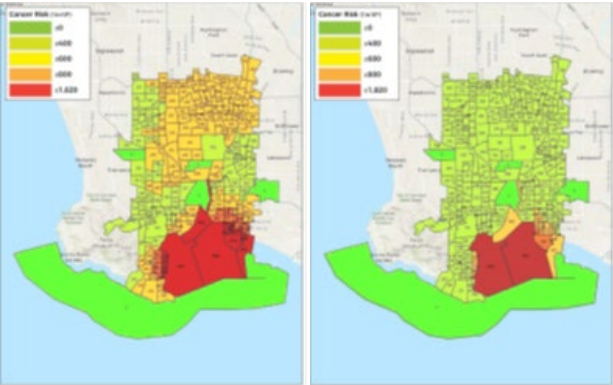
<sup>7</sup> CARB 2011 Biodiesel Characterization and NOx Mitigation Study, [https://www.arb.ca.gov/fuels/diesel/altdiesel/20111013\\_carb%20final%20biodiesel%20report.pdf?\\_ga=2.117018886.1679920944.1646672657-1675909722.1574251947](https://www.arb.ca.gov/fuels/diesel/altdiesel/20111013_carb%20final%20biodiesel%20report.pdf?_ga=2.117018886.1679920944.1646672657-1675909722.1574251947).

<sup>8</sup> Clean Fuels commissioned Trinity Consultants in 2021 to quantify the benefits of switching to biodiesel in transportation and other sources at 13 sites in 8 states, using standard USEPA and CARB air dispersion modeling and health risk assessment protocols to quantify such benefits at the neighborhood/census tract level. Four California sites were evaluated (Port of L.A./Long Beach, San Bernardino, South Fresno, and West Oakland), with the cancer risk reduction (over a 70-year timeframe) and annual non-cancer benefits summarized in Figures 2-5. The full reports are available at <https://www.biodiesel.org/news-resources/health-benefits-study>.

Figure 2. Benefits from Switching to B100 in Long Beach, CA

## B100 BENEFITS: LONG BEACH, CA – PORT

Cancer Risk Pre/Post-Switch to B100 (Up to 209 fewer cases)



Valuation of Reduced Incidence Benefits		
Endpoint	Reduced Incidence	Benefit Value
Premature Mortality	191.7	\$1,668,354,771
Asthma Exacerbation	121,589	\$7,161,686
Minor Restricted Activity Days	150,127	\$10,446,076
Work Loss Days	25,533	\$4,072,884
<b>Total</b>		<b>\$1,690,035,417</b>

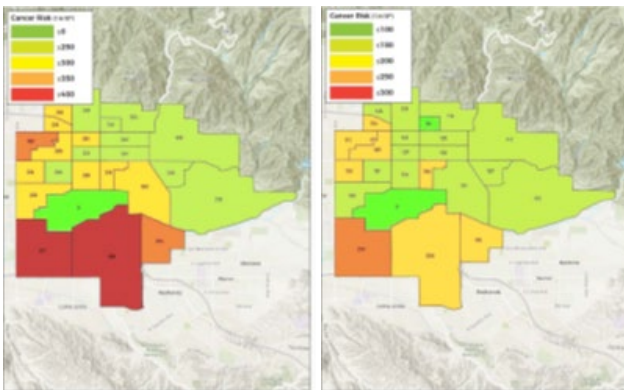
Reduction in Health Impacts					
Baseline Cancer Risk (1 in 10 <sup>6</sup> )	Cancer Risk Reduced to (1 in 10 <sup>6</sup> )	Change in Cancer Risk (1 in 10 <sup>6</sup> )	Baseline Tot. Cancer Burden (for study location)	Tot. Cancer Burden (for study location)	Change in Cancer Burden (for study location)
1,817	1,104	713 (39%)	473	264	209 (44%)



Figure 3. Benefits from Switching to B100 in San Bernardino, CA

## B100 BENEFITS: SAN BERNARDINO, CA – LOGISTICS

Cancer Risk Pre/Post-Switch to B100 (Up to 14 fewer cases)



Valuation of Reduced Incidence Benefits		
Endpoint	Reduced Incidence	Benefit Value
Premature Mortality	17.7	\$153,969,834
Asthma Exacerbation	12,823	\$755,273
Minor Restricted Activity Days	13,038	\$907,235
Work Loss Days	2,222	\$334,888
<b>Total</b>		<b>\$155,967,230</b>

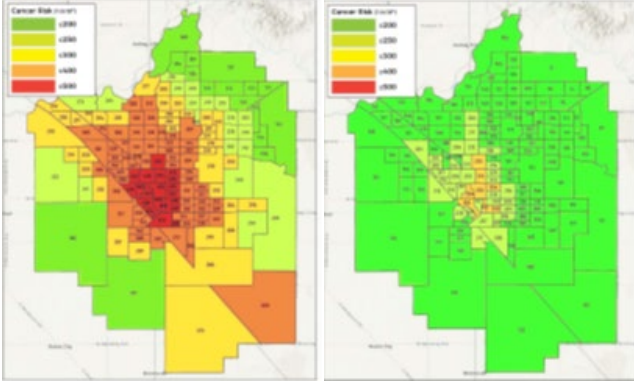
Reduction in Health Impacts					
Baseline Cancer Risk (1 in 10 <sup>6</sup> )	Cancer Risk Reduced to (1 in 10 <sup>6</sup> )	Change in Cancer Risk (1 in 10 <sup>6</sup> )	Baseline Tot. Cancer Burden (for study location)	Tot. Cancer Burden (for study location)	Change in Cancer Burden (for study location)
377	210	167 (44%)	33	19	14 (42%)



Figure 4. Benefits from Switching to B100 in South Fresno, CA

## B100 BENEFITS: SOUTH FRESNO, CA – AGRICULTURAL

Cancer Risk Pre/Post-Switch to B100 (Up to 92 fewer cases)



Valuation of Reduced Incidence Benefits		
Endpoint	Reduced Incidence	Benefit Value
Premature Mortality	3.2	\$28,007,206
Asthma Exacerbation	2,509	\$147,762
Minor Restricted Activity Days	2,289	\$159,301
Work Loss Days	391	\$60,108
<b>Total</b>		<b>\$28,374,377</b>

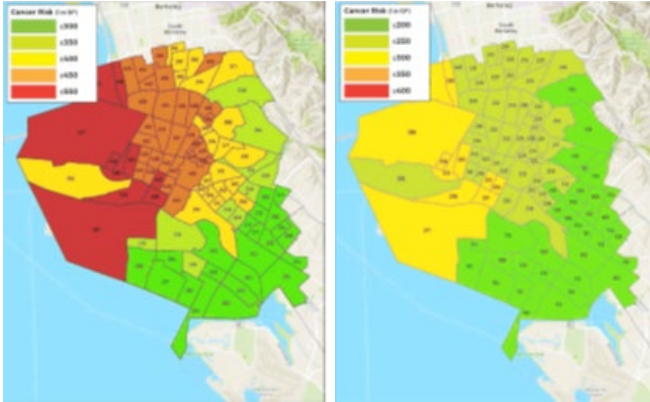
Reduction in Health Impacts					
Baseline Cancer Risk (1 in 10 <sup>5</sup> )	Cancer Risk Reduced to (1 in 10 <sup>6</sup> )	Change in Cancer Risk (1 in 10 <sup>6</sup> )	Baseline Tot. Cancer Burden (for study location)	Tot. Cancer Burden (for study location)	Change in Cancer Burden (for study location)
491	274	217 (44%)	208	116	92 (44%)



Figure 5. Benefits from Switching to B100 in West Oakland, CA

## B100 BENEFITS: WEST OAKLAND, CA – PORT

Cancer Risk Pre/Post-Switch to B100 (Up to 50 fewer cases)



Valuation of Reduced Incidence Benefits		
Endpoint	Reduced Incidence	Benefit Value
Premature Mortality	19.5	\$169,345,490
Asthma Exacerbation	11,837	\$697,184
Minor Restricted Activity Days	15,565	\$1,083,069
Work Loss Days	2,650	\$591,571
<b>Total</b>		<b>\$171,717,314</b>

Reduction in Health Impacts					
Baseline Cancer Risk (1 in 10 <sup>5</sup> )	Cancer Risk Reduced to (1 in 10 <sup>6</sup> )	Change in Cancer Risk (1 in 10 <sup>6</sup> )	Baseline Tot. Cancer Burden (for study location)	Tot. Cancer Burden (for study location)	Change in Cancer Burden (for study location)
533	298	235 (44%)	112	62	50 (45%)



## The Scoping Plan Update Presents an Opportunity for a Major Shift Away from Petroleum Diesel

As Clean Fuels and the California Advanced Biofuels Alliance (CABA) noted in our joint letter in January 2022<sup>9</sup>, the state has an opportunity with this Scoping Plan Update to further move away from its petroleum dependence. Our modeling, in conjunction with recent developments in the biodiesel and renewable diesel production capacities, indicates that the state can and should seek the complete displacement of liquid petroleum diesel demand, about 3.4 billion gallons after accounting for efficiency improvements, electrification, renewable natural gas, and other factors, within the 2030–2035 timeframe. Accordingly, CARB staff should model Scoping Plan scenarios and LCFS future targets based on such a petroleum displacement scenario, which would further accelerate and deepen carbon reductions through substitution of the petroleum diesel pool with much lower carbon substitutes like biodiesel and renewable diesel.

### Conclusion

We applaud and support the state's efforts to aggressively address climate change in a holistic manner. To this end, we strongly encourage the Scoping Plan Update to account for the ability of drop-in biofuels like biodiesel and renewable diesel to achieve substantial carbon reductions and public health improvements now, not years down the road, while the state is also pursuing aggressive electrification. This would, in turn, entail much faster and more aggressive carbon intensity reduction targets in the LCFS regulation, which should be pursued by rulemaking at the earliest opportunity.

Thank you for your consideration of these comments. We look forward to continuing our strong collaboration with California.

Sincerely,



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<sup>9</sup> Clean Fuels (NBB) and CABA Joint Comments, op cit.