EARTHJUSTICE

September 30, 2024

via electronic submittal

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

Re: Earthjustice Comments on the Recirculated Draft Environmental Impact Analysis for Proposed Regulatory Amendments to the Low Carbon Fuel Standard

Honorable Members of the California Air Resources Board:

Earthjustice submits the following comments on the Recirculated Draft Environmental Impact Analysis ("RDEIA") for the California Air Resources Board ("CARB") Proposed Amendments to the Low Carbon Fuel Standard Regulation ("Proposed Amendments" or "Project").[1] The fundamental purpose of the California Environmental Quality Act ("CEQA") is to ensure decisionmakers and the public are informed of potential environmental consequences of proposed actions and to prevent significant, avoidable environmental harms. "Only through an accurate view of the project may outsiders and public decision-makers balance the proposal's benefits against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal . . . and weigh other alternatives in the balance." *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192. Here, rather than "demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action," the RDEIA does the opposite, masking the severity of Project impacts and failing to adopt feasible measures to reduce the Project's serious environmental harms.[2] *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.* (1988) 47 Cal.3d 376, 392.

First, rather than adequately disclose and mitigate impacts from the Project's incentivization of crop-based biofuels, the RDEIA sweeps these problems under the rug. As described by numerous academic and other commentors through this rulemaking, the Low Carbon Fuel Standard ("LCFS") program has experienced explosive growth in crop-based biofuel production, resulting in indirect land use changes ("ILUC") that include deforestation and corresponding climate impacts and loss of biological resources. Moreover, as has been well-

[1] CARB acts pursuant to a certified regulatory program which exempts the agency from preparing an Environmental Impact Report ("EIR") because the environmental analysis CARB is required to undertake is deemed the functional equivalent of an EIR. 17 Cal. Code. Regs. §§ 60000-60007; *POET, LLC v. State Air Resources Bd.* (2013) 218 Cal.App.4th 681, 710. CARB's functional equivalent is an Environmental Impact Analysis ("EIA").

[2] Earthjustice comments do not address the RDEIA's failures under CEQA to properly analyze and mitigate impacts from the Project's significant incentives for fuel generated by manure lagoons in concentrated animal feeding operations. Earthjustice concurs with CEQA concerns raised by Leadership Counsel for Justice & Accountability ("LCJA") comments on the Draft EIA ("DEIA") and RDEIA.

documented, diverting crops to biofuel production raises food prices, thereby exacerbating global poverty and chronic malnourishment. Rather than meaningfully assess these serious harms and disclose expert viewpoints, the RDEIA relies on an outdated model and unsupported assumptions to minimize the severity of Project impacts and entirely ignores the human health impacts of decreased food consumption resulting from the Project. While the Project includes a 20 percent volume limit on certain types of crop-based biofuels, this measure does not effectively mitigate these impacts because it enables resource shuffling and because excess fuels are not assigned a carbon intensity ("CI") value sufficient to discourage program participation. In failing to adopt feasible mitigation measures, including applying limits to all crop-based biofuels, assigning excess production a CI score of ultra-low-sulfur diesel ("ULSD"), and imposing these limits immediately to avoid continued harms, the RDEIA violates CEQA. In addition, while the RDEIA claims the Project would result in substantial reductions in greenhouse gas ("GHG") pollution, it employs double-counting, improper baselines, and unsupported assumptions on the CI of crop-based fuels to significantly understate the GHG impacts of the Project.

Second, the RDEIA's analysis of the air quality impacts of biofuels use is deficient because it incorrectly claims emissions benefits from factors unrelated to the LCFS, ignores relevant evidence indicating that use of biofuels in California vehicles has higher pollution impacts than assumed, and fails to account for the effect of other incentives that impact the biofuel volumes consumed in California.

Third, the RDEIA fails to analyze the impacts of the Project's weak time-matching requirements for use of low-CI electricity for electrolytic hydrogen production. Overwhelming evidence shows that temporal matching of anything less than hourly could lead to substantial greenhouse gas emissions. The RDEIA ignores these impacts entirely. The RDEIA's analysis and mitigation of the greenhouse gas emissions from the production of hydrogen derived from fossil methane is also inadequate because it fails to account for the evidence that book-and-claim biomethane credits do not necessarily result in emissions reduction benefits.

Fourth, the RDEIA fails to analyze the impact of the Project on emissions of a wide range of pollutants that will likely occur as a result of the Project's support for polluting hydrogen production and biomethane, among other fuels, and fails to update the Health Impact Analysis despite its outdated Project assumptions.

Fifth, the RDEIA fails to adequately disclose and mitigate greenhouse gas emissions impacts from the Project's treatment of direct air capture ("DAC"), which could serve as an offset to fossil fuels, thereby resulting in their future use at the expense of zero-emissions alternatives.

Finally, the RDEIA's alternatives analysis is fundamentally compromised by CARB's failure to use a model capable of evaluating how program changes can increase zero-emission vehicle ("ZEVs") deployment and evaluate an alternative designed to accelerate ZEVs through limits on polluting fuels.

In light of these deficiencies, the RDEIA fails as an informational document under CEQA, mischaracterizing the Project's environmental impacts, ignoring relevant data, omitting analysis of critical impacts, and failing to require all feasible mitigation as required by law. The RDEIA

also fails to address the concerns raised by LCJA, Communities for a Better Environment, and other members of the public in their comments on the DEIA, which therefore still apply to the updated review. CARB should accordingly address the many problems with its environmental review of the Proposed Amendments and recirculate its analysis for additional public review and comment.

I. The EIA Fails to Adequately Analyze and Mitigate Impacts of Increased Crop-Based Biofuel Production Resulting from the Project.

A. The EIA's Analysis and Disclosure of the Potential Impacts from Increased Crop-Based Biofuel Production Is Deficient.

The "fundamental purpose of an EIR is 'to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment.'" *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 428 (emphasis added). Rather than do so, the EIA relies on an outdated model with underlying assumptions contrary to real world observations that serve to understate the severity of Project impacts. The EIA fails to disclose these shortcomings or discuss the numerous and significant flaws that multiple experts have identified in the model CARB used to evaluate LCFS ILUC impacts. The EIA's cursory treatment of the significance of Project ILUC impacts on deforestation, biological resources, water quality, and greenhouse gas pollution and failure to disclose impacts to human health from increased food insecurity violates CEQA's fundamental requirement that an EIA make a "good faith effort at full disclosure," including summarizing the main points of disagreement among experts. 14 Cal. Code Regs ("CEQA Guidelines") § 15151; *see also Berkeley Keep Jets Over the Bay v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1367.

1. The EIA Fails to Disclose Fundamental Flaws in the GTAP Model Identified by Numerous Academic Experts that Serve to Significantly Understate the Severity of the Multiple Impacts from Crop-Based Biofuel Production.

An EIA "must contain sufficient detail to help ensure the integrity of the process of decision-making by precluding stubborn problems or serious criticism from being swept under the rug." *Save the Hill Group v. City of Livermore* (2022) 76 Cal.App.5th 1092, 1108. In direct contravention of CEQA, by exclusively relying on an outdated, flawed methodology and failing to address the damning critiques of academic experts, the RDEIA is intent on hiding the serious problems with increased crop-based biofuel production resulting from the Proposed LCFS Amendments from decisionmakers and the public.

CARB relies on the Global Trade Analysis Project ("GTAP") model to assess ILUC impacts of the Project including forestry, agricultural, water quality, and biological resources.[3] The RDEIA states that "GTAP uses economic and trade data to model the land requirements – i.e., the amount of forest, pasture, and cropland converted – to meet an increase in biofuel demand."[4] In their brief discussions of the model, neither the DEIA nor the RDEIA address or even so much as acknowledge significant concerns raised by numerous expert academics that GTAP's underlying

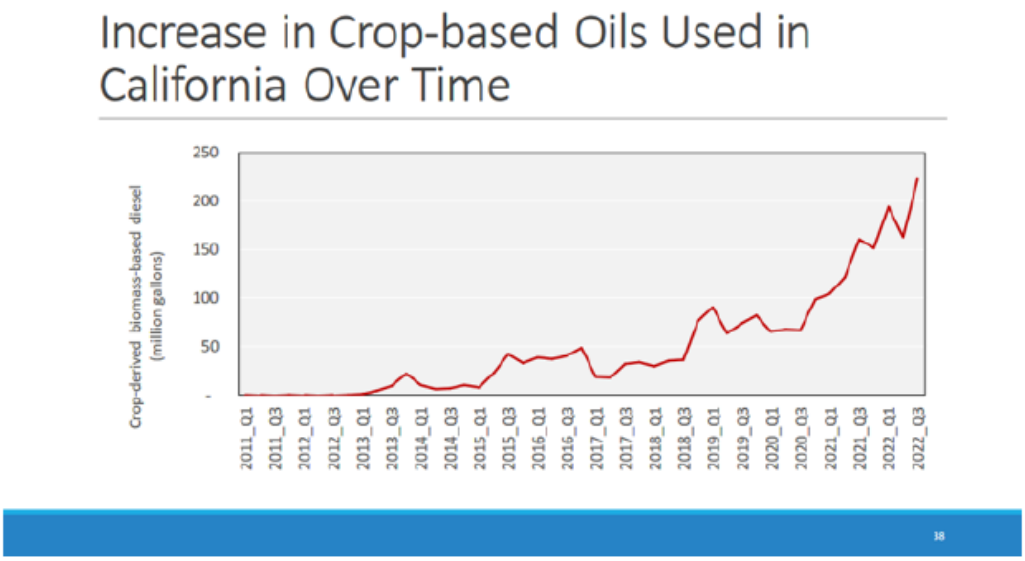
[3] *See, e.g.,* DEIA at 69, RDEIA at 16.
[4] REIA at 17.

assumptions lack evidentiary basis and its assessment of carbon intensity ("CI") of crop-based biofuels significantly understates their ILUC impacts. In direct contravention of CEQA's informational mandates, the RDEIA misleads decisionmakers and the public on the potential severity of increased crop-based biofuel production caused by the Project and its corresponding impacts to deforestation, biological diversity, water quality, greenhouse gas pollution, and global food prices and food insecurity.

As one example of fundamental flaws the RDEIA fails to acknowledge, the land use values used in LCFS currently, as modeled by GTAP, are not calibrated to assess the significant increase in renewable diesel ("RD") volumes projected under the Proposed Amendments. The DEIA states "[t]he current LCFS regulation uses land use change emissions estimates by feedstock, which were last assessed between 2013-2015" absent any recognition that circumstances have changes in the decade since these estimates were adopted.[5] Registering their significant concerns, the UC Davis Policy Institute for Energy, Environment and the Economy informed CARB that the "[t]he GTAP model simulated a supply shock based on anticipated impacts of the U.S. Renewable Fuel Standard [RFS], as it was structured at the time. They did not account for the rapid growth in lipid-based fuels, nor the more than doubling of Renewable Volume Obligations for biomass-based diesel under the RFS that has occurred since the modeling that informed the LCFS land use change impact values was conducted."[6] For example, to estimate ILUC emissions, GTAP assumes production of roughly 0.8 billion gallons of soy biodiesel.[7] But as shown in Figure 1, CARB's February 2023 workshop presentation acknowledged the unprecedented use of crop-based oils in the program, primarily driven by soy, indicating financial or other barriers have been overcome that make using these feedstocks viable, even under increasingly stringent CI benchmarks.[8]

[5] DEIA at 19.
[6] UC Davis, Policy Institute for Energy, Environment and the Economy, Comments on Proposed Low Carbon Fuel Standard Amendments at 8 (Feb. 20, 2024).
[7] CARB, Detailed Analysis for Indirect Land Use Change (2015) at I-8, https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/iluc_assessment/iluc_analysis.pdf.
[8] CARB, LCFS – Public Workshop: Potential Regulation Amendment Concepts (Feb 22, 2023) at 38, https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/lcfs_meetings/LCFSpresentation_02222023.pdf.

Figure 1: Staff February 2023 Workshop Slide Showing Crop-Based Oil Surge



Since then, biomass-based diesel volumes have increased further. In the second quarter of 2023, RD volumes grew an alarming 18.9 percent in a single quarter.[9] In the third quarter, volumes climbed another 10.5 percent.[10] In contrast to the approximately 0.8 billion gallons of soy biodiesel assumed under GTAP, the LCFS program reported over 2.2 billion gallons of biomass-based diesel volumes (i.e. RD and biodiesel ("BD")) in 2023.[11] Indeed, "[d]eployment of renewable diesel (RD) production capacity in the U.S. has greatly exceeded even very recent projections, and the majority of the production continues to flow to California."[12] A recent report by the U.S. Department of Agriculture ("USDA") also highlights significant concerns about the rapid growth of RD production and its impact on global feedstock trade, singling out California's LCFS as "the real driver for renewable diesel expansion."[13] Yet the RDEIA fails to discuss or analyze the effect increased biodiesel production would have on the accuracy of GTAP outputs. By relying on a model with input values that fail to account for the significant growth in crop-based fuel to evaluate Project impacts, the RDEIA understates ILUC from the Project and its corresponding environmental consequences.

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[9] Stillwater Associates, Flash Report: 2Q2023 LCFS Data Show More than 1.5 Million MT Net Credit (Nov. 3 2023), https://stillwaterassociates.com/flash-report-2q2023-lcfs-data-show-more-than-1-5-million-mt-net-credit/.

[10] Stillwater Associates, Flash Report: 3Q2023 LCFS Data Show More than 2.2 Million MT Net Credits, https://stillwaterassociates.com/flash-report-board-meeting-carb-staff-update-on-2023-lcfs-amendment-process-2/.

[11] *See* CARB, LCFS Quarterly Data Spreadsheet, https://ww2.arb.ca.gov/sites/default/files/2024-08/quarterlysummary_Q12024.xlsx (biodiesel (Row 80) and renewable diesel (row 81) in 2023 (columns AY, AZ, BA, BB) totaling 2,854,381,120 gallons).

[12] Colin Murphy and Jin Wook Ro, Updated Fuel Portfolio Scenario Modeling to Inform 2024 Low Carbon Fuel Standard Rulemaking (Feb. 2024) ("Murphy and Ro") at iii, https://escholarship.org/uc/item/5wf035p8.

[13] *Id.*

Moreover, the harm from increased crop-based fuels is not contained just to diesel alternatives. While there is still significant room for expansion of diesel alternatives (1.4 billion gallons of fossil diesel were reported in the LCFS in 2023), those same feedstocks can be used in jet fuel alternatives. In 2023, the LCFS reported 23 million gallons of alternative jet fuel ("AJF"), commonly referred to as sustainable aviation fuel, or "SAF") credited in the LCFS. According to CARB's 2021 GHG inventory, there are an additional 2.7 billion gallons of jet fuel used in California.[14] Prior to 2021, CARB did not separately report virgin oil feedstocks used for RD production due to their low use. Looking at 2019, virgin soy and canola-based biodiesel totaled 4.5 million gallons. By 2023, BD and RD volumes using virgin feedstocks totaled 434 million gallons—two orders of magnitude higher in four years. There is an additional 279 million gallons of RD produced from undefined feedstocks, which likely include significant virgin oils.[15] This exponential growth in virgin oil biofuel production is thus an immediate concern and one the GTAP model relied on by CARB does not evaluate.

The RDEIA similarly avoids any discussion of the damning critiques of GTAP by prominent academics, nor does it reevaluate ILUC impacts in light of these concerns. In *Evaluating the Economic Basis for GTAP and its Use for Modeling Biofuel Land Use,* Yale professor Steven Berry, who previously served as a consultant for CARB on economic issues related to the analysis of ILUC from biofuels, and Princeton Senior Research Scholar Timothy Searchinger concluded that "GTAP lacks a credible economic foundation" and "is particularly unable to credibly evaluate land use changes."[16] As Berry & Searchinger observe, under the GTAP model, "estimated ILUC carbon losses from a gallon of corn ethanol and soybean biodiesel are extremely low, meaning there is little carbon cost for diverting even vast areas of prime farmland to biofuel production."[17] GTAP reaches this outcome though a series of assumptions with little to no evidentiary basis, or in some cases directly contrary to available evidence. As one example, GTAP assumes at least an 80 percent increase in productivity of existing agricultural land in the United States and most regions to supply biofuels, such as by increasing the acres of land that produce two crops a year, known as "double-cropping," thereby minimizing indirect land use changes.[18] Yet while there appeared to be a small increase in double-cropping in the U.S. in the first few years of the renewable fuel mandate, double cropping over the last five years was roughly 40 percent lower than between 2007-2011 and among the lowest level ever recorded in USDA data.[19] Nowhere does the RDEIA acknowledge that key assumptions underlying GTAP's assessment of carbon intensity of crop-based biofuel production has not been borne out by reality.

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[14] Total calculated from CARB's Greenhouse Gas Inventory Tool, https://ww2.arb.ca.gov/applications/greenhouse-gas-emission-inventory-0. 346 million gallons of intrastate fuel are included in the California GHG emissions inventory; however, all jet fueled in California is eligible for LCFS credits.

[15] *See* LCFS Quarterly Data Spreadsheet, https://ww2.arb.ca.gov/sites/default/files/2024-08/quarterlysummary_Q12024.xlsx .

[16] Steven Berry, Timothy Searchinger, and Anton Yang, *Evaluating the Economic Basis for GTAP and Its Use for Modelling Biofuel Land Use*, Yale, Tobin Center for Economic Policy (Mar. 19, 2024) ("Berry et al.").

[17] *Id.*

[18] *Id.* at 6.

[19] *Id.*

A recent analysis by the U.S. Environmental Protection Agency ("EPA") underscores the significant variability among GHG lifecycle models, particularly in estimating LUC impacts [20] Despite this variability, the study raises concerns that the current LUC values may be underestimated even at current levels. The EPA evaluated five models under various scenarios, including a soybean oil biodiesel shock, which simulated an additional one billion gallons of U.S. soybean oil biodiesel consumption annually.[21] Across all models, this shock led to increased land use change emissions compared to a reference case. In each of the five models, the one-billion-gallon shock resulted in **greater land use change emissions** from the reference case, ranging from an **increase** in land use change CI of 10 kg CO_2e/MMBTU[22] for GTAP to 295 CO_2e/MMBTU for the Applied Dynamic Analysis of Global Economy (" ADAGE") model.[23] This is alarming not only from a soy oil perspective but also given the substitutability of feedstock oils and the potential market growth in California and elsewhere. Indeed, while CARB often seeks to serve as a model for adopting policies other states can follow, replication of the LCFS's incentivization of crop-based biofuels in other states would aggravate the already significant impacts from crop-based biofuels on deforestation, biological resources and global food security.

GTAP can also understate ILUC impacts because it only allows managed lands to be repurposed for productive uses, excluding the conversion of unmanaged lands like rainforests or grasslands. Additionally, GTAP assumes that all new soybean oil biodiesel production occurs in the U.S., with minimal associated land use change, "implying a net reduction in food consumption."[24] These findings suggest that existing LUC estimates, particularly those generated by GTAP, likely significantly underestimate the true environmental impacts of increased biofuel production. As researchers at UC Davis noted, "[g]iven the uncertainty involved in ILUC assessment, and the asymmetric risks of overestimation vs. underestimation of ILUC impacts, adopting a value based on an estimate from a single model, especially one at the lower end of the uncertainty range established by multiple models, creates substantial risk of unrecognized GHG emissions, environmental harm, and stranded assets."[25]

While the RDEIA acknowledges ILUC impacts to forestry, agricultural, water quality, and biological resources are significant, its refusal to discuss the serious concerns raised by prominent academics and government institutions over the multiple ways in which the severity of these impacts is likely understated by GTAP violates CEQA. As courts have held, "an EIR's designation of a particular adverse environmental effect as 'significant' does not excuse the EIR's failure to reasonably describe the nature and magnitude of the adverse effect." *Cleveland Nat'l Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 514. Yet the RDEIA misleads decisionmakers and the public by instead attempting to minimize concerns, stating "[w]ith continued increased demands on biofuel crops the Proposed Amendments could contribute to

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[20] EPA, Model Comparison Exercise Technical Document (2023), https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1017P9B.pdf.

[21] As noted by EPA, "soybean oil does have near perfect substitutes," suggesting that this exercise using soybean oil serves as a proxy for other potential virgin oils used either as a substitute feedstock for fuel production or for other end uses. *Id.* at 97.

[22] 1 g CO2e/MJ = 1.055 kg CO2e/MMBTU.

[23] The GREET model run, which also showed a land use change carbon intensity increase of 10 is also based on GTAP. *See* EPA, Model Comparison Exercise Technical Document at 114.

[24] Model Comparison Exercise Technical Document, *supra note* 20 at 98.

[25] Murphy and Ro, *supra note* 12 at 9.

increased direct and indirect land use change to accommodate new croplands, but the likelihood of this is at least partially (and potentially fully) accounted for by the LUC scores added to crop-derived pathways."[26] Indeed, the RDEIA's suggestion that ILUC impacts are potentially fully accounted for by LUC scores is directly contravened by the explosive growth in crop-based biofuels as a result of the LCFS program and model assumptions that do not account for increased ILUC impacts as a direct consequence of this growth.

2. The RDEIA Fails to Disclose the Impact of Increased Crop-Based Biofuel Production on Global Food Insecurity and Its Corresponding Impacts on Public Health.

Potential impacts to public health fall within the scope of analysis required by CEQA. *See, e.g.*, *Sierra Club v. County of Fresno* ("*County of Fresno*") (2018) 6 Cal.5th 502, 517. CEQA similarly requires public agencies to analyze the potentially significant impacts of a proposed project that may occur in "the area which will be affected by [the] proposed project." Guidelines § 15360; Public. Res. Code § 21060.5. Accordingly, the global public health impacts of increased crop-based biofuel production resulting from the Project must be disclosed as part of environmental review. Yet despite assuming crop-based biofuel production reduces the demand for food by increasing its price,[27] the RDEIA ignores corresponding impacts to global health from decreased food consumption in direct contravention of CEQA's informational mandates.

When assessing adequacy of environmental review, "courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure." *Count of Fresno*, 6 Cal.5th at 510. Accordingly, even "if it is not scientifically possible to do more than has already been done to connect [project] effects with potential human health impacts, the EIR itself must explain why, in a manner reasonably calculated to inform the public of the scope of what is and is not yet known about the Project's impacts." *Id.* With roughly 800 million people facing hunger every day of their lives,[28] the impact of biofuel production on food security is well documented. Increased biofuel production raises food prices, thereby contributing to global poverty and chronic undernourishment.[29] Biofuels can threaten food security and trigger levels of hunger to be more serious "because sizeable percentages of food crops, which are supposed to be used for food consumption, are diverted to biofuel production and will continue to be diverted in the future as the production of biofuels expands."[30] Indeed, the GTAP model CARB relies upon for estimates of ILUC from corn ethanol assumes roughly half of the food calories are not replaced due to increased food prices.[31] As noted by Jim Duffy, former CARB Branch Chief overseeing the LCFS program, "**a portion of the GHG emission reductions that CARB is attributing to crop-based biofuels directly results from the most food insecure populations in the world eating less.**"[32]

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[26] RDEIA at 35.
[27] CARB, *Low Carbon Fuel Standard Public Workshop* (July 7, 2022) at slide 34 https://ww2.arb.ca.gov/sites/default/files/2022-07/LCFSWorkshop_Presentation.pdf.
[28] To & Grafton, *Oil prices, biofuels production and food security: past trends and future challenges,* Food Sec. (2015) 7:333.
[29] *Id.* at 7:323-336.
[30] Subramaniam et al., *The impact of biofuels on food security*, Int'l Economics (2019) 160:72-83, https://www.sciencedirect.com/science/article/abs/pii/S2110701719302410.
[31] Berry et al., *supra note* 16 at 4.
[32] Comments of Jim Duffy to CARB re: Proposed LCFS Program Amendments (Feb. 19, 2024) (emphasis in original).

As researchers studying the effects of biofuels policy have observed, "[w]hile lower food consumption may not translate directly into nutritional deficits among wealthy households, any decline in consumption will have a severe impact on households that are already malnourished."[33] In failing to identify and discuss the impact of the Project on exacerbating global food insecurity and world hunger, the RDEIA violates CEQA. *County of Fresno*, 6 Cal.5th at 510 ("[t]he relevant informational document here is the EIR, and the EIR must communicate not to the reviewing court, but 'the public and the government officials deciding on the project,'" regarding potential impacts).

B. The EIA Fails to Adopt All Feasible Mitigation to Reduce Impacts from Crop-Based Biofuel Production, and What Little Mitigation Is Adopted Is Ineffectual and Speculative.

The DEIA and RDEIA acknowledge ILUC from crop-based biofuel production has potentially significant impacts on agriculture and forestry, biological resources, and water quality.[34] Where, as here, environmental review has identified significant impacts from the Project, "the EIR must propose and describe mitigation measures that will minimize the significant environmental effects that the EIR has identified." *Napa Citizens for Honest Gov't v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 360. CEQA requires that agencies "mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so." Pub. Res. Code § 21002.1(b). Mitigation of a project's significant impacts is one of the "most important" functions of CEQA. *Sierra Club v. Gilroy City Council* (1990) 222 Cal.App.3d 30, 41. Therefore, it is the "policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." Pub. Res. Code § 21002; *See Laurel Heights I*, 47 Cal.3d at 400–401.

To comply with CEQA, CARB must ensure mitigation measures are "fully enforceable" through permit conditions, agreements, or other legally binding instruments. Pub. Res. Code §§ 21002, 21081.6(b); CEQA Guidelines §§ 15002(a)(3), 15126.4(a)(2). To be enforceable, a mitigation measure must be detailed and specific. California courts have clarified that an EIR is inadequate where its proposed mitigation measures are so undefined that it is impossible to evaluate their effectiveness. *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61, 79. In particular, a mitigation measure must include criteria or performance standards against which the mitigation's actual implementation can be measured. *See San Joaquin Raptor Rescue Ctr. v. County of Merced* (2007) 149 Cal.App.4th 645, 670 ("*County of Merced*"). The reader must be able to discern what steps will be taken to mitigate the project's impacts. *Id.* Without such detail, there is no way for decision-makers and the public to weigh whether the proposed measures will sufficiently mitigate a project's impacts, causing the EIR to fail its core, informational purpose.

Here, the RDEIA falls far short of CEQA's mitigation requirements. As an initial matter, CARB largely attempts to shirk responsibility for Project impacts despite Project design being the driving force for these impacts. What few measures CARB does propose are overly vague or

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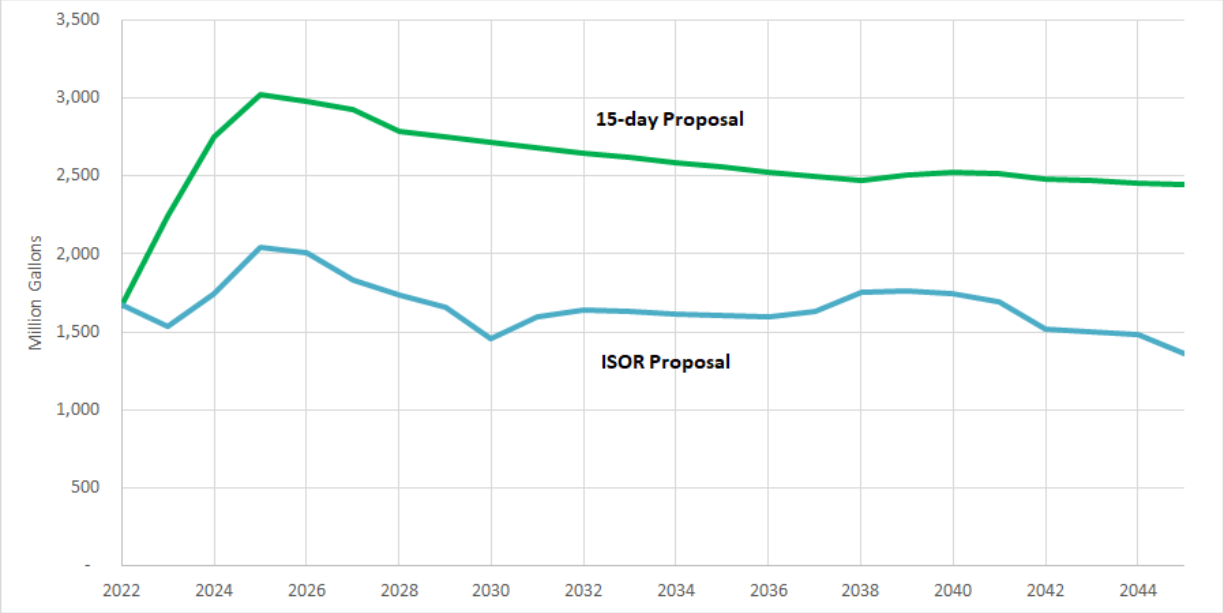
[33] Hertel et al, *Effects of US Maize Ethanol on Global Land Use and Greenhouse Gas Emissions: Estimating Market-mediated Responses,* BioScience Vol. 60:223 at 229 (2010), https://academic.oup.com/bioscience/article/60/3/223/257043.

[34] *See* DEIA at 51, 70, 103.

ineffectual at addressing the significant impacts from crop-based biofuel production resulting from the Project. Indeed, as shown in Figure 2, the 15-day changes proposed by CARB staff that are the focus of the RDEIA show projected volumes of RD are actually 50% higher than those modeled in CARB's original proposal, which did not include additional mitigation beyond a 20 percent credit limit on crop-based diesel. The issues related to potential biofuel volume increases were identified prior to the revised projected volumes. The problem becomes all the more immediate under the increased volumes that CARB projects will come into California, as demonstrated in Figure 2.

Figure 2. Renewable Diesel and Biodiesel Volumes Projected Over Time



Data Source: CARB.[35]

While the proposed 20 percent credit limit on crop-based diesel is an acknowledgment of the significant environmental consequences of unchecked production, the measure is ineffective at mitigating these impacts. Additional feasible mitigation measures are necessary to reduce these impacts, including but not limited to:

- As recommended by numerous stakeholders, CARB should adopt a volume limit on lipid biofuels. To the extent CARB continues with a percentage-based approach, it should be revised to include all virgin lipid fuels rather than only those derived soybean and canola and apply to SAF.
- Rather than assign overages the benchmark CI, CARB should assign these fuels the CI of ultra-low sulfur diesel to effectively disincentivize their participation.
- Apply limits immediately rather than delay implementation by three years as currently proposed.

[35] Figure created from CARB modeling tables provided with proposed 15-day changes, available at https://ww2.arb.ca.gov/resources/documents/supplemental-20232024-lcfs-modeling-documentation.

1. CARB's Effort to Evade Responsibility for Project Impacts Is Inconsistent with CEQA.

Despite controlling the parameters of the LCFS program, the EIA improperly seeks to absolve CARB of its responsibility over Project impacts. For example, the DEIA states that "[b]ecause CARB has no land use authority, mitigation is not within its purview to reduce potentially significant impacts to less-than-significant levels."[36] CEQA requires CARB to determine whether changes or additions can be made to the *Proposed Amendments themselves* that will reduce the severity of their significant environmental impacts. CEQA Guidelines § 15126.4(a)(2) ("[i]n the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design"). CARB clearly has the authority to make changes or additions to its own Proposed Amendments, which will lessen the severity of their environmental impacts. Any excuse not to do so based on a lack of local land-use or other local permitting authority constitutes grave legal error.

2. The Mitigation Measures the RDEIA Does Adopt Enable Resource Shuffling and Therefore Fail to Effectively Mitigate ILUC Impacts from Increased Crop-Based Biofuel Production.

a) Tracking Crop-Based and Forestry-Based Feedstocks to Point of Origin Does Not Effectively Mitigate Project Impacts.

The RDEIA states that "CARB staff are proposing to require pathway holders track crop-based and forestry-based feedstocks to their point of origin and require independent feedstock certification to ensure feedstocks are not contributing to impacts on other carbon stocks like forests."[37] This measure is not effective in mitigating the Project's significant ILUC impacts from increased crop-based biofuel production. As observed by researchers at UC Davis, feedstock sustainability certifications "are incapable of mitigating indirect risks like ILUC, which are driven by aggregate demand within a given market, which in the case of vegetable oils, is effectively global."[38] Nor would the proposed certification requirement succeed in stabilizing the credit price because "[t]here is ample potential supply of crop-based vegetable oil that would meet proposed sustainability criteria."[39] The proposed certification would merely direct that feedstock to biofuel production, forcing the current consumers of that oil to find other oil supplies, which have historically included unsustainable alternatives that require conversion of additional land into cultivated use.[40] Accordingly, the DEIA misleads decision-makers and the public in claiming that "[t]he proposed sustainability criteria for crop-based feedstocks and forest biomass for biofuel production would help protect against potential future land use impacts as it disincentivizes sourcing biofuel feedstocks with higher land-use change risks."[41]

Indeed, neither CARB's current ILUC factors nor the proposed certification standard account for the reality that waste- or residue-derived biofuels still pose significant risks of emissions increases through shuffling. CARB's assumption that ILUC factors for waste- and

[36] DEIA at 49.
[37] RDEIA at 16.
[38] Murphy and Ro, *supra note* 12 at 11.
[39] *Id.*
[40] *Id.*
[41] DEIA at 48.

residue-derived fuels have zero or very small indirect emissions is outdated.[42] Used cooking oils and animal fats can divert these products from other non-human consumption ends like livestock feed or consumer products, which then end up needing additional oils to substitute.[43] In fact, the proposed certification system would create a powerful incentive to pass off conventional biofuels as waste- and residue-based fuels. Skyrocketing global imports of used cooking oil (including recent pathways approved by the LCFS for California to import Used Cooking Oil from Southeast Asia and Oceania) have been beleaguered by widespread incidence of fraud. Several EU member states have launched national and criminal investigations into fraudulently labeled used cooking oil in their biofuel markets. Germany and Ireland launched such investigations in 2023, and the Netherlands' ongoing criminal investigation has identified that a third of the biodiesel reported as used cooking oil could be virgin oils.[44]

In addition, neither the DEIA nor the RDEIA provide sufficient detail on how certification will comply with the proposed amendments (including, e.g., which certification bodies would be eligible, what metrics they would be required to assess, and how CARB will verify the work of certifiers). The RDEIA's deferral of these critical details is inconsistent with CEQA. CEQA Guidelines § 15126.4; *County of Merced*, 149 Cal.App.4th at 670.

b) The RDEIA's Mitigation Measure to Only Remove Palm Oil from Credit Generation Is Ineffective Because It Will Simply Result in Resource Shuffling.

The RDEIA states that CARB staff are proposing to remove palm derived fuels from eligibility for credit generation, given palm oil has been demonstrated to have the highest risk of being sourced from deforested areas.[45] The exclusion of palm oil is a distraction from effective mitigation measures. Per Staff, palm oil has not been reported in the program, likely owing to the current LUC CI value of 70 g/MJ.[46] Direct contracts for palm oil for LCFS are not the issue. Rather, impacts arise because soy and palm oil are near-perfect substitutes. Recent studies have pointed this out, including one that shows that the United States' increased consumption of soy biofuels has indirectly increased demand for palm oil to substitute in cooking.[47] In other words, with soy oil diverted to the LCFS program, use of palm oil for cooking increases, along with the significant climate impacts from increased deforestation for its cultivation. As long as demand for soy

[42] CARB, ISOR – Proposed Re-Adoption of the LCFS (Dec. 2014) at II-12, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2015/lcfs2015/lcfs15isor.pdf.
[43] Jane O'Malley, Stephanie Searle, and Nikita Pavlenko, "Indirect Emissions from Waste and Residue Feedstocks: 10 Case Studies from the United States" (Washington, D.C.: ICCT, 2021), https://theicct.org/publication/indirect-emissions-from-waste-and-residue-feedstocks-10-case-studies-from-theunited-states/.
[44] Transport & Environment, Biofuels: From Unsustainable Crops to Dubious Waste? (Dec. 2023) at 20-21, https://www.transportenvironment.org/wp-content/uploads/2023/12/202312_TE_biofuels_update_report_clean-1-1.pdf.
[45] RDEIA at 16.
[46] *See* ISOR Staff Report at 32-33, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/isor.pdf; ISOR Appendix E at 13, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/lcfs_appe.pdf.
[47] Fabio Gaetano Santeramo and Stephanie Searle, "Linking Soy Oil Demand from the US Renewable Fuel Standard to Palm Oil Expansion through an Analysis on Vegetable Oil Price Elasticities," Energy Policy 127 (April 1, 2019) at 19-23, https://doi.org/10.1016/j.enpol.2018.11.054.

consumption continues to surge in California due to the LCFS program, this equates to greater consumption of palm oil elsewhere. The RDEIA's failure to address this dynamic renders this mitigation measure inadequate under CEQA and underscores the flaws in only seeking to limit certain types of virgin crop oils in the program.[48]

c) The RDEIA's Proposed 20 Percent Credit Limit on Virgin Soybean and Canola Oil Is Not Effective in Mitigating Impacts from Crop-Based Diesel Production.

In the Proposed Amendments, "Staff is proposing to provide credits for biomass-based diesel produced from virgin soybean oil and canola oil for up to 20 percent of annual biomass-based diesel reported on a company-wide basis. Quantities of soybean or canola oil biomass-based diesel in excess of 20 percent would be given the carbon intensity for the applicable year's diesel fuel benchmark from Table 2 of the LCFS regulation, or the certified carbon intensity of the applicable fuel pathway; whichever is higher."[49] While this measure is an acknowledgement of the need to limit the significant harms from increased crop-based biofuel production, it is not effective at mitigating these harms for at least the following two reasons: 1) the failure to extend this limit to all virgin crop oils and sustainable aviation fuel will result in resource shuffling; and 2) linking surplus production to the applicable year's diesel fuel benchmark still provides significant production incentives.

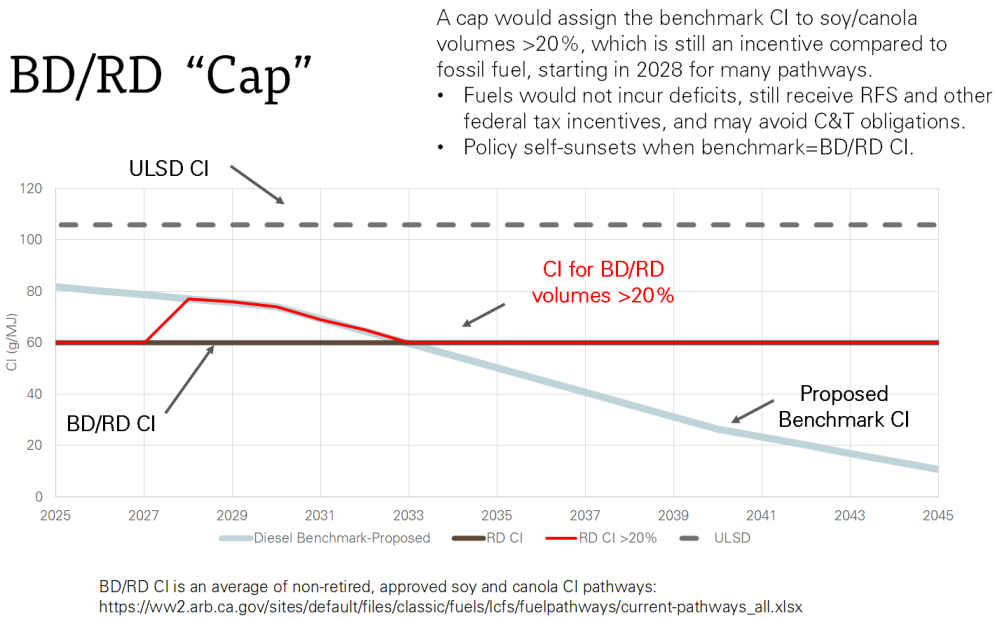
First, CARB's proposal to limit this measure to virgin soybean and canola oil ignores the interchangeability of vegetable oils. As explained in comments by Berry & Searchinger, "increases in demand for any vegetable oil will cause comparable increases in demand for vegetable oil in general and will therefore elicit very similar market and land responses. There is no reason to exempt corn or sunflower oil."[50] Accordingly, the lack of limitations on corn and sunflower oil in the Proposed Amendments would simply result in larger amounts directed to biofuels, with soybean and canola oil substituting for corn and sunflower oil in non-biofuel applications and no net change to ILUC impacts. To be effective at mitigating ILUC impacts, all virgin vegetable oils must be included within this measure. Shuffling will likely also occur because the proposed measure does not include sustainable aviation fuels. Yet the RDEIA fails to analyze these substitution effects and the impacts of ILUC and other impacts from substitute feedstocks.

Second, the RDEIA makes the unsupported assertion that "the proposed regulation is not expected to result in significant increases in soy and canola feedstock utilization for biomass-based diesel, given that volumes in excess of 20 percent, which matches 2023 feedstock composition levels across all pathways, will not be eligible for crediting."[51] However, even with volumes above 20 percent assigned to the benchmark CI as contemplated under the RDEIA, producers still have an incentive to deliver fuel to California. They would avoid generating deficits, benefit from higher diesel prices in California, potentially avoid Cap-and-Trade obligations, and continue to receive federal subsidies such as the RFS and Blender's Tax Credit. In addition, due to the proposed auto-acceleration mechanism ("AAM"), the benchmark is likely to equal the CI of RD within three

[48] EPA, Model Comparison Exercise Technical Document, *supra note* 20 at 97 (soybean oil does have near perfect substitutes for many end uses, in the form of other vegetable oils.").
[49] RDEIA at 15.
[50] Comments of Steve Berry & Tim Searchinger Regarding Renewal of Low Carbon Fuel Standard (Aug. 27, 2024).
[51] RDEIA at 35.

years of it going into full effect. For example, the average of current soy and canola BD/RD pathways is 60 gCO2e/MJ. Under the proposed benchmark schedule, RD/BD volumes exceeding 20% would lose a subsidy equivalent to a CI difference of 17 gCO2e/MJ, reducing to 9 gCO2e/MJ by 2031.[52] Should the AAM be triggered in 2028 and 2030, even this small difference will disappear by 2031.[53] Therefore, the proposed limits provide only a short-term disincentive that phases out as the benchmark CI decreases to match RD's CI. Accordingly, assigning excess biofuels to the CI benchmark does not send a strong enough signal to discourage production and its corresponding impacts. CARB itself recognizes that assigning fuels the ULSD benchmark is an effective deterrent, as it has proposed assigning ULSD to the following: biofuels produced with uncertified biomass,[54] fuels produced with palm or palm derivatives,[55] and RNG used in compressed natural gas ("CNG") vehicles after 2040.[56] The contrast between the effectiveness of assigning the ULSD benchmark compared to the RDEIA's proposed Benchmark CI is illustrated below in Figure 3 below.

Figure 3: Carbon Intensities of ULSD, Proposed Benchmark, and Proposed CI for Biofuels Over the 20% Limit



BD/RD CI is an average of non-retired, approved soy and canola CI pathways:
https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/current-pathways_all.xlsx

[52] Applying the current benchmark CI for diesel fuel of 77.10 and 69.27 in 2028, and 2031, respectively.
[53] The benchmark schedule would advance to 75.57 in 2028 and 59.75 in 2031. The Proposed Amendments assigns volumes over 20% the higher of the fuel CI or the benchmark, so all fuel volumes would be assigned the original CI of 60, thereby negating any disincentive. In addition, with sustained $0 credit prices modeled by CARB under the Proposed Scenario and stakeholder comments to increase the benchmark stringency, at least one AAM triggered in the near term may be expected. *See* UC Davis Policy Institute for Energy, Environment, and the Economy Comments on the Proposed Amendments to the Low Carbon Fuel Standard at 4 (Aug. 27, 2024), https://www.arb.ca.gov/lists/com-attach/7587-lcfs2024-Wy5cOVULVGMKbQF3.pdf.
[54] 17 Cal. Code Regs § 95488.9(g).
[55] *Id.* at § 95482(f).
[56] *Id.* at § 95482(g).

d) Executive Officer Discretion to Assign More Conservative LUC Values at Some Future Juncture Does Not Meet CEQA's Mitigation Standards.

The RDEIA states that "the Proposed Amendments incorporate a mechanism to assign more conservative LUC carbon intensity values to feedstock/fuel combinations from regions with higher risk."[57] The proposed provision would grant the Executive Officer the authority to assign a more conservative land use change ("LUC") value.[58] This measure does not confer a legally binding obligation and therefore does not comply with CEQA mitigation requirements. Pub. Res. Code § 21081.6(b) ("A public agency shall provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures.").

In addition, there is no legitimate basis for CARB to delay adjusting CI values. As set forth above, the most recent update was in 2015—well before the recent surge in renewable diesel production that increases ILUC pressures and corresponding CI values of crop-based biofuels. Deferring action by adopting a provision allowing for potential future adjustment provides no assurance impacts will be mitigated nor does it address impacts that will occur prior to any such adjustment being implemented.

CARB's deferral of adjusting LUC values to discretionary action by CARB's Executive Officer action also thwarts "CEQA's goals of public participation and informed decision-making." *Save Our Capitol! v. Dept. of General Services* (2023) 87 Cal.App.5th 655, 701. Currently, much of the LUC evaluation is conducted by the fuel applicant, with limited opportunities for public input or scrutiny. This process lacks the necessary rigor and accountability to ensure that LUC values are accurately assessed and applied. The new proposed measure exacerbates this problem by centralizing more decision-making power with the Executive Officer, without providing any clear mechanisms for public oversight or involvement. Accordingly, the proposed measure is wholly insufficient to mitigate Project impacts and fails to meet the CEQA's standards of transparency and public participation that are critical for sound governance.

3. CEQA Requires CARB to Adopt Additional Feasible Mitigation to Address Resource Shuffling and Mitigate ILUC Impacts.

As set forth in previous comments by Earthjustice and numerous other stakeholders, a volume limit can effectively mitigate the severe impacts from unconstrained lipid biofuel production.[59] Instead, CARB has proposed a percentage limit, which, as described above, is ineffective at limiting biofuels as currently designed. As an initial matter, CARB has not explained why adoption of a volume limit is infeasible or, as discussed below, evaluated this option in its flawed and narrow alternatives analysis. To the extent CARB continues to pursue a percentage credit limit, the RDEIA fails to adopt all feasible mitigation measures to reduce the significant ILUC impacts from crop-based biofuel production. CEQA explicitly acknowledges that feasible mitigation measures can include changes that are incorporated into the regulation itself. CEQA Guidelines § 15126.4(a)(2). Each of the following mitigation measures is feasible and within

[57] RDEIA at 17.
[58] CARB, Proposed 15-day Changes, 17 Cal. Code Regs § 95488.3(d).
[59] *See, e.g.,* Earthjustice, Comments on the Low Carbon Fuel Standard 15-Day Changes (Aug. 27, 2024), https://www.arb.ca.gov/lists/com-attach/7557-lcfs2024-VmRUYgQ3WT4LIAg4.pdf.

CARB's authority to incorporate in the Proposed Amendments. CARB's failure to do so would constitute a clear violation of CEQA:

a) Extend Credit Limit to All Virgin Vegetable Oil-Based Fuels and Apply Limit to Sustainable Aviation Fuels.

To address resource shuffling, the RDEIA should be revised to extend the 20 percent limit of crop-based fuel production to all virgin vegetable oils, including corn and sunflower oil, rather than only soybean or canola oil as currently contemplated. To address the same resource shuffling concerns, CARB should extend the measure to SAFs. Making these tweaks to CARB's currently proposed measure is feasible and critical to reducing the significant impacts of crop-based diesel and jet fuel production.

Any concern that applying caps on corn oil as a feedstock for diesel and jet fuels is infeasible because it would interfere with California's ethanol blending requirements is without merit. The ethanol blending mandates specifically apply to gasoline, not to diesel or jet fuels. Therefore, applying a credit-generation limit to lipids used for diesel or jet fuel alternatives would not impact corn oil availability for ethanol production.[60]

b) Assign Excess Fuels a CI Value of Ultra Low Sulfur Diesel ("ULSD") Rather than the CI Benchmark.

As set forth above, assigning overages of crop-based fuels the benchmark CI does not send a signal sufficient to disincentivize their production. Instead of using the benchmark CI, CARB should set a firm cap or, in the alternative, assign overages with a CI of ULSD. This provides a stronger and more durable signal and is eminently feasible as demonstrated by CARB's assignment of the CI for ULSD to other fuel pathways it has deemed problematic. For example, in the case of palm-derived fuels, CARB recognized in the Initial Statement of Reasons ("ISOR") for the Project that "assigning the ULSD CI ensures that the fuel would receive as many deficits as fossil diesel per gallon. Guaranteed deficit generation, coupled with increased cost of transporting palm-derived fuels to California from other countries, should continue to send a strong signal that disincentivizes use of this fuel."[61] CARB has similarly proposed assigning a ULSD CI to feedstocks that are not certified by January 1, 2028 because "[t]his deficit generation sends a strong signal that disincentivizes use of non-certified crop- and forestry-based feedstocks.[62] Similarly, the RDEIA should be revised to assign excess crop-based fuel production the ULSD CI to provide this same strong disincentive to participate in the LCFS program.

c) Implement Provisions to Limit Crop-Based Biofuels Immediately.

To mitigate the current deforestation and global food price harms from the rampant growth of crop-based fuels, CARB should eliminate the proposed provision that would allow producers

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[60] However, a cap on liquid gasoline alternative fuels may be warranted if liquid fuels are not expected to decline significantly in the coming years. EPA, Model Comparison Exercise Technical Document, *supra note 20 (*showing increased CI from some models when high assuming high levels of ethanol production).
[61] Proposed Amendments to the Low Carbon Fuel Standard Regulation, Appendix E: Purpose and Rationale of Proposed Amendments to the Low Carbon Fuel Standard Requirements at 13 (Jan. 2, 2024), https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/lcfs_appe.pdf.
[62] *Id.* at 80.

to continue producing in excess of the 20% for the next three years. As noted in comments by the International Council on Clean Transportation, CARB's "design of the grandfathering provisions could allow for a significant expansion of vegetable oil volumes over present-day consumption."[63] Because crediting restrictions would not need to be adhered to until 2028, this "creates room under the crediting limit for refinery expansion and higher soy and canola blend rates in the interim years" and corresponding impacts from these activities.[64] Eliminating this provision avoids these significant harms.

C. CARB Overstates the Greenhouse Gas Reductions from Biofuels.

With regard to the Project's greenhouse gas impacts, the RDEIA concludes that "while some small level of GHG emissions would be emitted from the reasonably foreseeable compliance responses to the Proposed Amendments, these emissions would be substantially less than the emissions benefits of implementation of the Proposed Amendments."[65] The RDEIA's claim that the Project would substantially lessen greenhouse gas emissions does not withstand scrutiny. In direct contravention of CEQA, CARB relies on double-counting benefits attributable to other programs, unsupported assumptions, and use of improper baselines to reach its conclusion that the Project would purportedly reduce greenhouse gas pollution.

Given these significant flaws, as well as CARB's failure to accurately account for greenhouse gas emissions from hydrogen production as discussed in Sections III.B and IV.B, the RDEIA fails as an informational document by omitting any disclosure that the Proposed Amendments may increase greenhouse gas pollution. This outcome runs counter the Project's Objective to align with "with California's 2030 GHG target to reduce GHG emissions by 40% from the 1990 levels as enacted through Senate Bill (SB) 32 (Pavley, Chapter 249, Statutes of 2016)"[66] as well as the Objective to "Incentivize fuel production and refueling infrastructure buildout needed to meet California's long-term climate goals and reduce dependence on petroleum fuels, including opportunities to leverage federal funding for low-carbon hydrogen production and zero emission vehicle ("ZEV") fueling, and support the transition of biomethane fuel pathways for combustion out of transportation," among others.[67] It would also render the Project inconsistent with the AB 32, the statute authorizing CARB to implement the LCFS.

1. The RDEIA Improperly Claims GHG Benefits Attributable to Other Programs.

The RDEIA inaccurately attributes 100 percent of the GHG emission reductions from biofuel consumption to the LCFS. This approach neglects the significant role of federal programs such as the Renewable Fuel Standard ("RFS") and the Biodiesel Blenders Tax Credit ("BTC"). CARB acknowledged in the 2018 rulemaking that these federal mandates primarily drive biofuel production. The RFS sets a total biofuel volume in the U.S., so any volumes under the RFS volume

[63] International Council on Clean Transportation comments on the Proposed 15-day changes to Proposed Regulation Order (Aug. 27, 2024), https://www.arb.ca.gov/lists/com-attach/7554-lcfs2024-Bm8BZAZkAyQCWwBj.pdf.
[64] *Id.*
[65] RDEIA at 59.
[66] *Id*. at 4.
[67] *Id*. at 8.

would be available regardless of the LCFS.[68] Because the LCFS rewards incremental improvements in a fuel pathway lifecycle GHG emissions, there may be some additional GHG reductions beyond the RFS mandate (of 20 or 50% CI reduction) attributable to the LCFS. The 2018 LCFS amendments acknowledged this and credited the LCFS only for CI reductions beyond those required by the RFS. However, the 2024 amendments assume that the LCFS is responsible for the full CI reduction in the Draft EIA, despite the RFS and BTC still being in effect, and CARB has failed to explain the change of attribution. This methodological shift fails to consider the continuing influence of federal mandates, thus significantly inflating the projected environmental benefits of the proposed amendments.

2. The EIA Overstates GHG Benefits from the Project by Asserting the Project Will Result in Proportional Declines in Emissions from In-State Oil Production and Refining.

The EIA further errs by assuming that reduced fossil diesel consumption in California will result in a proportional decline in oil production and refining within the state, thereby claiming GHG reductions from reduced upstream oil production and refining as a result of the Project. CARB has not previously included upstream emission reduction benefits and the current approach and assumptions are flawed:

- **Declining California Crude Production**: California's crude oil production has been in decline well before the LCFS went into effect and is likely to continue independent of LCFS regulations. By assuming a static baseline at 2019 production levels, CARB disregards this long-term decline, leading to an inaccurate assessment of the LCFS's impact. CARB does not explain why they used a 2019 baseline when the CEQA baseline as stated on page 14 of the Draft EIA indicates a 2023 baseline year. The Oil & Gas Extraction emissions for 2019 are 18% higher than in 2023, leading to overstated emissions reductions. Use of this baseline in improper under CEQA. *See* CEQA Guidelines § 15125.

- **California Refining Capacity**: The EIA assumes that reduced demand for fossil diesel in California will lead to a corresponding reduction in refining capacity within the state. However, this assumption ignores the complex dynamics of the global oil market. California refineries may continue to produce fossil diesel, exporting it to regions outside the state or even internationally, where LCFS and Cap-and-Trade compliance costs do not apply. This "fuel switching" undermines the EIA's assessment of the LCFS's impact on reducing GHG emissions and criteria pollutants within California. Based on an analysis of CEC and LCFS data, only 29% of California's diesel remains in-State.[69]

- **Rebound Effect and Market Dynamics**: In its analysis, CARB assumes a one-to-one decline in oil and gas extraction to fossil diesel demand declines as estimated in the LCFS. Even assuming that fossil diesel demand may decrease as an effect of LCFS, CARB fails to account for any rebound effect, a well-documented phenomenon in energy economics

[68] *See,* EPA, Final Renewable Fuel Standards Rule for 2023, 2024, and 2045, https://www.epa.gov/renewable-fuel-standard-program/final-renewable-fuels-standards-rule-2023-2024-and-2025.

[69] Carbon Acumen, LCFS Rulemaking Update Highlights (Aug. 14, 2024), https://carbonacumen.substack.com/p/lcfs-rulemaking-update-highlights.

where improvements in efficiency or reduced demand for a particular energy source can lead to broader market changes that offset some of the expected reductions.

Moreover, even assuming some upstream emissions reductions occur from reduced oil extraction and production as a result of the Project, CARB has overestimated those benefits in several ways. First, CARB assumes the decline in upstream emissions is proportional to the decline in demand for ULSD. CARB estimates the upstream emission reductions using the following formula:

*Upstream emission reductions = Reference Year Oil & Gas Emissions * Percent Reduction in Diesel Demand 2024-2046*

Each of the inputs into the *Upstream emission reductions* calculation is flawed. For *Reference Year Oil & Gas Emissions,* CARB incorrectly uses 2019 emissions as the reference year for oil and gas extraction emissions when the Project baseline is 2023, overstating the baseline emissions.[70] For *Percent Reduction in Diesel Demand 2024-2046,* CARB incorrectly estimates the percent reduction in diesel demand. CARB calculates the percent change in ULSD demand in 2046 compared to 2024 for the Project but does not account for reduced demand that would occur under a No Project (baseline) scenario, thus overstating the reduction in diesel demand for the Project.[71]

CARB then inexplicably evaluates the demand reduction from gasoline and diesel, and then makes an adjustment to "remove gasoline,"[72] incorrectly calculating the proportion of diesel produced from a barrel of crude oil.[73] While this results in an (incorrect) reduction in diesel demand by 34%, CARB applies a 45% reduction in upstream emissions.[74] Finally, these calculations assume that lower fossil diesel demand results in proportional upstream emission reductions. However, as explained above, some diesel production is continuing but being exported. The net result is a significant overestimation of the upstream emission reductions attributable to the LCFS.

3. CARB's Assumptions of the GHG Impacts from ILUC Are Not Supported by Substantial Evidence and Grossly Understate Emissions from Crop-Based Biofuels.

Significance determinations under CEQA may not be based on speculation and unsubstantiated opinion. *See Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal.4th 204, 228. As described above, the RDEIA's analysis of ILUC impacts is

[70] 15-Day GHG Calculations Workbook, https://ww2.arb.ca.gov/sites/default/files/2024-08/15Day%20GHG%20Calculations_posted_0.xlsx, GHG O&G Calculation tab, sum of D2-5 for 2019 and H2-5 for 2023.
[71] *Id.* at Petroleum Reduction tab, line 12.
[72] CARB's Advanced Clear Cars II analysis included upstream emissions reductions in its CEQA analysis. CARB, Analysis for the Advanced Clean Car II Program at 105, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/acciifinalea.docx. Therefore, the same reductions cannot be counted in the LCFS.
[73] CARB assumes that the diesel portion of a barrel of crude oil is 40%, based on a US EIA graphic from 2022. 15-Day GHG Calculations Workbook at Petroleum Reduction tab. The calculation is erroneous as it only evaluates the amount of distillate compared to distillate + gasoline. If instead CARB evaluated the distillate against the full barrel of crude oil, the percentage that is used for diesel (distillate) is 28%.
[74] 15-Day GHG Calculations Workbook, Scenarios Calculation tab (upstream emissions reductions totaling 69 million metric tons (MMT) CO2e, while the total upstream emissions in the O&G Calculations tab shows 150 MMT CO2e).

premised on outdated and unsupported modelling assumptions that serve to grossly understate the Project's impact on deforestation from increased demand for crop-based biofuels. For example, GTAP's assumption of significantly increased productivity on existing lands to meet biofuel demand is contrary to real-world observations. The lack of evidentiary support underpinning GTAP and its corresponding assumptions of the carbon intensity of crop-based biofuels further render the RDEIA's claim that the Project will not result in significant greenhouse gas impacts invalid under CEQA.

II. The RDEIA Fails to Adequately Disclose, Evaluate, and Mitigate Air Quality Impacts from the Use of Renewable Diesel and Biodiesel in California.

A. The RDEIA Improperly Claims Air Quality Benefits from Decreased Crude Oil Extraction in California.

Similar to its flawed greenhouse gas analysis, CARB inappropriately attributes to the Project air quality benefits resulting from declining crude oil production in California. For NOx, CARB asserts in its RDEIA analysis that up to 55% of annual emissions reductions and 24% of overall emissions reductions from the Project in 2024–2046 are due to upstream decreases in emissions.[75] For particulate matter 2.5 ("$PM_{2.5}$"), CARB claims that up to 37% of annual emissions reductions from the Project and 25% of overall reductions in 2024–2046 are due to upstream emissions declines.[76]

As explained above, CARB provides no evidence that the Proposed Amendments have a significant impact on upstream crude oil extraction declines in California, and data in the record suggest that there is likely no effect. For example, according to CARB's 2022 update to the Scoping Plan, California crude production has been on the decline since 1986, even prior to the existence of the LCFS.[77] Further, this faulty accounting stands in sharp contrast to its approach in the 2018 LCFS rulemaking. As noted above, in that rulemaking, CARB did not assume that the LCFS had any effect on state crude oil production. CARB does not explain why it has altered its rationale here. CARB's emissions reductions estimations related to crude extraction declines thus lack evidentiary support and likely inflate the Project's air quality benefits.

B. By Ignoring Relevant Data in Its Own 2021 Study, CARB Fails to Properly Analyze Emissions Impacts from Use of Biodiesel and Renewable Diesel in California Vehicles.

CARB improperly bases its NOx and PM emissions estimates on outdated information, while ignoring the updated and relevant findings of a 2021 CARB study. This failure to consider pertinent data renders its analysis inadequate and violates CEQA.

In estimating NOx and PM emissions from the Project, CARB relies on a 2011 CARB study which shows that, when compared to fossil diesel, RD reduces PM and NOx and BD reduces

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[75] CARB, Air Quality Analysis Workbook from 15-day Package (Aug. 12, 2024) ("AQ Analysis Workbook"), Air Basin Summary NOx BAU tpd (i.e. tons per day) tab, https://ww2.arb.ca.gov/sites/default/files/2024-08/2024%20LCFS_Amendments_Air_Quality_Calculations_15Day%20Proposed_1.xlsx.

[76] *Id*. at Air Basin Summary NOx BAU tpd tab, PM2.5 BAU tpd tab.

[77] CARB, Scoping Plan (2022) at 103.

PM and increases NOx.[78] According to CARB, the NOx reductions from use of RD serve to offset some or all of the NOx increases from BD.[79] Based in part on this assumption, CARB concludes that the Proposed Amendments cause a net reduction of NOx and PM.[80]

This conclusion lacks evidentiary support because CARB fails to account for the fact that new engines in use in California today have emissions impacts that are different from the engines studied by CARB in 2011. Since 2011, CARB has implemented regulations requiring the use of new technology diesel engines ("NTDEs").[81] As a result of these requirements, NTDEs are currently in widespread use in California, and CARB's data show that, by 2045, these engines will make up the vast majority of California engines.[82]

Critically, with respect to NOx, although CARB had assumed that NTDEs would fully address the NOx pollution from biodiesel,[83] a 2021 CARB study on emissions from NTDEs shows that this is not the case. To the contrary, the study shows that, when used in NTDEs, RD does not

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[78] Durbin, T.D., et al. *Final Report - CARB Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California "Biodiesel Characterization and NOx Mitigation Study* (2011), https://ww2.arb.ca.gov/sites/default/files/classic/isd/fuels/diesel/altdiesel/20111013_carb%20final%20biodiesel%20report.pdf?_ga=2.58437354.1525227723.1691423115-350507302.1675712467. In its presentation of NOx and PM emissions, CARB also fails to explain the basis for the emissions factors that it uses. The air quality spreadsheets presented refer to the calculation as "using ISD" and "Based on 2018 EA Volumes." *See* AQ Analysis Workbook, *supra* note 75, BAU Comparison – BD RD NOx tab at B4 and B5. CARB does not explain what these references mean or how they inform its choice of emissions factors. In the September 2023 Standardized Regulatory Impact Assessment ("SRIA") CARB states that "staff assumed the use of biodiesel in NTDEs results in no change in NOx emissions relative to use of conventional diesel" and that "CARB staff is continuing to study biodiesel emission rates in NTDEs." *See* CARB, SRIA (Sept. 9, 2023) at B-9 n.113, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/appc-1.pdf. CARB also states in the SRIA that NOx and PM "emissions test data for renewable diesel in NTDEs were not available (Durbin et al., 2011)." *Id*. at B-11 n.123, n.124. In the RDEIA, CARB does not state that it has changed its assumptions from those used in the SRIA, and it therefore appears CARB is using the findings of the 2011 study as the basis for its emissions estimates.

[79] CARB, Proposed Amendments to the Regulation on the Commercialization of Alternative Diesel Fuels – 15-Day Changes, Appendix B (Oct. 14, 2020) at 3, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2020/adf2020/15dayattb.pdf (noting that renewable diesel serves as "an offsetting factor for NOx emissions from biodiesel blends.").

[80] AQ Analysis Workbook, *supra* note 75, at Air Basin Summary PM2.5 BAU tpd tab,Air Basin Summary NOx BAU tpd tabs.

[81] *See* 13 Cal. Code Regs. §§ 2293, et seq.; *see also* 13 Cal. Code Regs. § 2293.2(a)(18) (defining NTDEs).

[82] *See* CARB, NTDE and Non-NTDE populations in ISOR modeling (Sept. 4, 2023), https://ww2.arb.ca.gov/sites/default/files/2024-09/NTDEv.nonNTDE%20vehicle%20split.xlsx (estimating that in 2024, 93% of on-road and 44% of off-road VMT use NTDEs and by 2045, all on-road and 79% of off-road VMT will use NTDEs.).

[83] CARB, Staff Report: Initial Statement of Reasons, Proposed Regulation on the Commercialization of Alternative Diesel Fuels (2015), https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2015/adf2015/adf15isor.pdf. ("Staff expects increasing use of NTDEs to eliminate biodiesel's NOx impact over time, thus the proposed biodiesel provisions include a sunset provision."); *see also* 13 Cal. Code Regs. § 2293.6(a)(4) (providing that NOx control requirements will no longer be in effect once there is sufficient penetration of NTDEs).

offset the increased NOx emissions from BD. This is because, in NTDEs, RD does not decrease NOx emissions (as it does in older engines) while BD continues to increase NOx emissions when compared to fossil diesel.[84]

Therefore, CARB's own 2021 study shows that any increases in BD use in NTDEs today could lead to NOx increases since those emissions are no longer offset by a NOx decrease from RD. Without explanation, CARB ignores this highly relevant data. Failing to account for this important evidence, CARB claims without support that BD use in NTDEs results in no change in NOx and that there are significant NOx reductions from RD and BD use,[85] accounting for 87% of overall NOx reductions in 2024–2046.[86] CARB misleads the public when it claims in the RDEIA that it is taking a "conservative approach" by using the same assumptions that it used in 2018 to analyze BD NOx impacts.[87] The more recent data suggest higher emissions than CARB projects; a *conservative* approach would be to account for these 2021 data when estimating NOx impacts. Instead, CARB sweeps these findings under the rug.

Moreover, CARB improperly locks in stable biodiesel volumes in its modeling. In its modeling input spreadsheet, CARB indicates that biodiesel volumes are "[l]ock[ed] at 2022 volumes."[88] CARB provides no explanation for why it is proper to "lock" biodiesel volumes by reading volumes into the model as fixed. CARB's model is designed to select the least-cost fuel option based on various data.[89] Given the cost advantages of BD, as evident in the modeling inputs,[90] BD volumes would likely grow over time. This increase, based on the 2021 data, could present NOx emissions increases. Yet CARB, inexplicably, appears to have overridden the model to fix the volumes at current levels.

With respect to PM emissions, CARB also ignores the findings of the 2021 study. Although the 2021 study shows that, when used in NTDEs, neither RD nor BD reduce PM by a statistically

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[84] Durbin, T.D, et al. (2021) ("2021 Durbin Analysis") at Table ES-3 and ES-4 for Off-Road and On-Road NTDE, respectively, https://ww2.arb.ca.gov/sites/default/files/2021-12/Low_Emission_Diesel_Study_Final_Report_12-29-21.pdf.

[85] CARB, SRIA at B-12, Table 60, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/appc-1.pdf.

[86] CARB, Air Quality Analysis Workbook from 15-day Package (Aug. 12, 2024), Air Basin Summary NOx BAU tpd tab, https://ww2.arb.ca.gov/sites/default/files/2024-08/2024%20LCFS_Amendments_Air_Quality_Calculations_15Day%20Proposed_1.xlsx(indicating 83.477 tons per day of NOx reduction and 96.3 tons per day total NOx reduction from the program. 83.477/96.4= 87%),

[87] RDEIA at 53 n.55.

[88] CARB, Modeling Input Sheets from 15-day Package, Production Limits tab at E109, https://ww2.arb.ca.gov/sites/default/files/2024-08/scenario_inputs_15Day_Proposed_9step_30_final_posted_0.xlsx.

[89] CARB, California Transportation Supply Model Documentation (Aug. 2023), https://ww2.arb.ca.gov/sites/default/files/2023-08/CATS%20Technical_1.pdf at 2 ("[t]o determine fuel mixes likely available for California, CATS seeks to minimize the cost of supplying all defined fuel pools such that fuel demand constraints are met.").

[90] CARB, Modeling Input Sheets from 15-day Package, Fuel Production tab, https://ww2.arb.ca.gov/sites/default/files/2024-08/scenario_inputs_15Day_Proposed_9step_30_final_posted_0.xlsx (compare BD costs of $106/ton and $383/ton in cells F6 and F7, respectively to RD costs of $925/ton and $1122/ton in cells F176 and F177, respectively).

significant amount,[91] CARB asserts in the Standardized Regulatory Impact Assessment ("SRIA") for the Project that RD results in a 30% reduction in PM and BD a 95% reduction.[92] In the RDEIA, CARB further asserts that 55% of overall PM reductions 2024–2046 are attributable to RD and BD use.[93] These conclusions are belied by relevant data in the 2021 study.

In sum, by ignoring relevant data on NOx and PM emissions from the combustion of biofuels, the RDEIA lacks evidentiary support and likely underestimates the Project's harmful emissions impacts and overstates its emissions benefits.

C. Even Assuming There Are Any Air Quality Benefits from Biofuels Use, CARB Overstates these Benefits by Failing to Account for the Effects of Other Policy Incentives.

As it does with greenhouse gases (explained above in Section I.C.1), CARB improperly claims that 100 percent of RD's PM and NOx benefits should be attributed to the LCFS, thus failing to acknowledge that the federal RFS, BTC and other incentives also have an effect.[94] CARB provides no evidence suggesting that only the Project (and not other policy incentives) affects biofuels volumes and the associated air quality impacts. This flawed overestimation of biofuels' air quality impacts is a departure from other recently approved CARB regulations that include methodologies detailing how CARB accounted for other relevant initiatives and incentives already in place when it estimated impacts of the proposed regulation.[95] It is also a departure from past practice in the LCFS. In the 2018 LCFS rulemaking, for example, Staff included an adjustment to the GHG and air quality benefits to "eliminate double counting of emission reductions that are more appropriately attributed to other State and federal programs such as Advanced Clean Cars and Renewable Fuel Standard."[96] Staff clearly detailed the methodology for attributing the incremental benefits of the LCFS and those to other programs in Appendix F of the 2018 LCFS

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[91] 2021 Durbin Analysis, *supra* note 84 at 28–29, Table 4-9, 4-10.

[92] CARB, SRIA at B-12, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/appc-1.pdf.

[93] AQ Analysis Workbook, *supra* note 75, at Air Basin Summary PM2.5 BAU tpd tab (indicating 13.88 tons per day of PM reductions attributed to biofuels use and 25.276 total tons per day of total PM reductions. 13.88/25.276=55% of total emissions.).

[94] *Id.* at Attribution Assumptions tab (stating that 100% of the increase in consumption for fuels, with the exception of electricity for light duty vehicles, heavy duty vehicles, and other uses of electricity is attributable to the LCFS.).

[95] CARB, Advanced Clean Cars II Regulation, Staff Report: Initial Statement of Reasons (April 12, 2022) at 163–165 (evaluating the benefits of the proposed regulation that were in addition to federal requirements and describing how CARB accounted for the ZEV technology fractions in the California baseline fleet based on new nationwide ZEV sales projections presented in the U.S. EPA Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026.), https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/accii/isor.pdf.

[96] CARB, 2018 Update to LCFS Regulation and Alternative Diesel Fuels Regulation, Initial Statement of Reasons (Mar. 6, 2018) at IV-2, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/isor.pdf?_ga=2.105822022.451461435.1708363833-1354554675.1652381457.

ISOR.[97] CARB does not justify its methodology nor explain why it has strayed from its accounting practices in other programs and changed course from the 2018 LCFS rulemaking.

D. CARB Fails to Provide Adequate Mitigation for Air Quality Impacts from Biofuels Combustion.

Because the RDEIA fails to adequately assess the air quality emissions impacts of the Project, overstating its benefits and ignoring data on emissions, its mitigation is insufficient. When air quality impacts are significant, as the RDEIA acknowledges they are here,[98] all feasible mitigation is required under CEQA. Public. Res. Code § 21002; *Sacramento Old City Assn. v. City Council* (1991) 229 Cal.App.3d 1011, 1027; *POET, LLC*, 218 Cal.App.4th at 734-35. Mitigation can take many forms, including avoiding the impact altogether by not taking a certain action or parts of an action and minimizing impacts by limiting the degree or magnitude of the action and its implementation. 14 Cal. Code Regs., § 15370. As explained above, mitigation measures are only legally valid if they are fully enforceable. Public Res. Code § 21081.6(b); *Assn. of Irritated Residents v. Kern County Bd of Supervisors* (2017) 17 Cal.App.5th 708, 752.

CARB has failed to fulfill these mitigation requirements with respect to air quality impacts from the Project's support for biofuels combustion. For example, members of the public have proposed to CARB a wide range of options during this rulemaking including, among others, (1) A credit multiplier for zero-emissions transit vehicles that reflects their impact on vehicle-miles traveled and (2) enhanced credit-generation potential for medium- and heavy-duty charging infrastructure. Such measures are feasible and would increase deployment of zero-emissions technology and thus yield NOx and PM emissions reductions needed to mitigate emissions from the impacts from the Project's RD and BD use in California vehicles. CARB's failure to require all feasible mitigation impacts violates CEQA.[99]

III. The RDEIA Fails to Adequately Disclose, Analyze and Mitigate Impacts of Electrolytic Hydrogen Production.

A. The RDEIA Fails to Adequately Describe the Project with Respect to Electrolytic Hydrogen.

The Proposed Amendments allow for the environmental attributes of low-CI electricity to be separated from its physical generation, creating a potential mismatch between the power

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[97] That is, the RFS requires renewable diesel to have GHG lifecycle emissions at least 50% below the lifecycle emissions of fossil diesel, and CARB's cost-benefit analysis for proposed LCFS amendments has previously taken credit only for emissions reductions from renewable diesel that go beyond the federal mandate.
CARB, Attachment F – Updates to the Methodologies for Estimating Potential GHG and Criteria Pollutant Emissions Changes Due to the Proposed Amendments (2018) at F-14, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/15dayattf2.pdf

[98] RDEIA at 43, 55.

[99] CARB also fails to address the comments of Communities for a Better Environment on the DEIA's deficiencies with respect to analysis and mitigation of air quality impacts from biofuels production in California. CBE enumerates numerous feasible measures that would mitigate these significant impacts.. Communities for a Better Environment, Comments on DEIA (Feb. 20, 2024) at 18-20, https://www.arb.ca.gov/lists/com-attach/6984-lcfs2024-VTZRNVYyAg5QOgRn.pdf. CARB's failure to adopt them in the RDEIA violates of CEQA. Public. Res. Code § 21002

sourced for electrolytic hydrogen production and the actual grid mix, which could include fossil fuels. The RDEIA fails to describe this feature of the Project and the fact that it is allowing three-quarters time matching for low-CI electricity. "An accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 730 (quoting *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193). An accurate project description is "the heart of the EIR process" and "necessary for an intelligent evaluation of the potential environmental effects of a proposed activity." *Sacramento Old City Ass'n. v. City Council* (1991) 229 Cal.App.3d 1011, 1023; *San Joaquin Raptor/Wildlife Rescue Center,* 27 Cal.App.4th at 730. While extensive detail is not necessary, the law requires that EIRs describe proposed projects with sufficient detail and accuracy to permit informed decisionmaking. *See* CEQA Guidelines § 15124 (project description). To adequately evaluate the environmental ramifications of the Project, the RDEIA must first provide a comprehensive description of the project itself. CARB's failure to describe in the RDEIA relevant information about the Project's electrolytic hydrogen requirements violates this duty.

B. CARB Fails to Address Potential Greenhouse Gas Emissions Increases from Electrolytic Hydrogen Production.

Scientific evidence shows that indirect accounting for low-CI electricity that allows matching of low CI energy generation with a facility's energy demand on anything less frequent than an hourly basis would lead to emissions increases that are just as dramatic as relying on grid-average electricity.[100] CARB fails to account for this impact. According to research from Princeton University, an hourly matching requirement is necessary to avoid spiking pollution on the power grid from electrolytic hydrogen production. Indeed, even a weekly matching standard would lead to emissions increases.[101]

Despite this evidence, the Project allows book-and-claim matching for low-CI electricity to span three quarters.[102] This change represents a step backwards from the already-deficient ISOR proposal, which required only quarterly, rather than hourly, matching. CARB fails to justify the basis for this step backward, and the RDEIA does not address the possibility that LCFS hydrogen

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[100] Earthjustice, Comments on the Low Carbon Fuel Standard Staff Report: Initial Statement of Reasons (Feb. 20, 2024) at 31, https://www.arb.ca.gov/lists/com-attach/7077-lcfs2024-Wz4BZgd0BCNVOwJo.pdf (citing Wilson Ricks et al., *Minimizing emissions from grid-based hydrogen production in the United States*, Env't Rsch. Letters (Jan. 6, 2023), at 7–8, https://iopscience.iop.org/article/10.1088/1748-9326/acacb5/pdf).

[101] Wilson Ricks et al., *Minimizing emissions from grid-based hydrogen production in the United States*, Env't Rsch. Letters (Jan. 6, 2023), at 7–8, https://iopscience.iop.org/article/10.1088/1748-9326/acacb5/pdf; Dan Esposito et al., *Smart Design of 45V Hydrogen Production Tax Credit Will Reduce Emissions and Grow Industry* (Apr. 2023), at 26–32, https://energyinnovation.org/wp-content/uploads/2023/04/Smart-Design-Of-45V-Hydrogen-Production-Tax-Credit-Will-Reduce-Emissions-And-Grow-The-Industry.pdf; Rhodium Group, *Scaling Green Hydrogen in a post-IRA World* (Mar. 16, 2023), https://rhg.com/research/scaling-clean-hydrogen-ira/ (showing that annual matching increases greenhouse gas emissions); Gregory Miller et al., *Hourly accounting of carbon emissions from electricity consumption*, Env't Rsch. Letters (Apr. 8, 2022), https://iopscience.iop.org/article/10.1088/1748-9326/ac6147 (emphasizing the increasing importance hourly matching as more renewable electricity resources are deployed); Elisabeth Zeyen et al., *Hourly versus annually matched renewable supply for electrolytic hydrogen* (Dec. 19, 2022) ("Zeyen et al."), https://zenodo.org/records/7457441/files/Report_TUB_hourlyvsannually.pdf?download=1.

[102] CARB, Proposed 15-day Changes, 17 Cal. Code Regs § 95488.8 (i)(1)(C)(4).

could increase greenhouse gas emissions under this accounting framework, directly counter to the very purpose of the LCFS program. Given the evidence that anything less than hourly matching can have adverse impacts, these effects of the Project are not too speculative as to excuse CARB from the obligation to undertake such an analysis.

C. CARB Fails to Evaluate and Mitigate Impacts to the Electric Grid.

In addition to omitting any examination of emissions impacts, the RDEIA fails to analyze the extent to which the Project's lax standards for hydrogen production, including a weakening of time-matching requirements in the 15-day change proposal will impact, grid reliability. Impacts to utilities and service systems must be evaluated under CEQA. CEQA Guidelines §§ 15126.2(b), 15301(b); Guidelines, Appendix G, *Environmental Checklist Form*, § XIX. Research has found that failing to adhere to hourly-matching and other requirements for hydrogen production would increase power prices in Southern California by 8%.[103] Other studies examining hourly versus annual matching (which the Proposed Amendments approach) have found annual matching would result in up to a 43% increase to power prices.[104] The RDEIA fails to disclose, analyze, and mitigate these effects.

Minimizing the environmental and grid impacts of electrolytic hydrogen production requires ensuring compliance with each of the following: 1) hourly matching, 2) ensuring additional renewable resources are deployed to meet demand; and 3) delivery of the electricity used to power the production process.[105] Yet rather than adopt each of these provisions, CARB has proposed to further weaken time-matching requirements in 15-day language. CARB's failure to incorporate each of these measures into the Project violates CEQA. Pub. Res. Code § 21002.1(b); CEQA Guidelines § 15126.4.

IV. The RDEIA Fails to Accurately Describe the Project's Fossil Hydrogen Provisions and Fails to Adequately Analyze and Mitigate Their Impacts.

A. The RDEIA Fails to Describe the Project with Respect to Its Crediting of Fossil Methane-Derived Hydrogen.

As with electrolytic hydrogen, the RDEIA fails to properly describe the Project with respect to hydrogen production from fossil methane. The RDEIA contains a section titled "Remove Eligibility of Fossil Fuel-Derived Hydrogen" which explains that the Proposed Amendments will "remove credit generation eligibility for hydrogen produced from fossil fuels, effective January 1, 2031."[106] But this description omits a key provision within the Proposed Amendments that will allow fossil methane to flourish under the Proposed Amendments: the allowance of fossil methane to generate credits so long as producers purchase book-and-claim biomethane credits and pair those credits with fossil hydrogen.[107] This loophole within the fossil methane phase out provision

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[103] Princeton Three Pillars Study, Research Addendum: Consumer Electricity Price Impacts of the 45V Hydrogen Production Tax Credit (Oct. 25, 2023), https://zenodo.org/records/10041735. Increased power prices also increase affordability burdens of electric ratepayers.

[104] Zeyen et al., *supra* note 101 at 5.

[105] Princeton Three Pillars Study, *supra* note 103.

[106] RDEIA at 14.

[107] 17 Cal. Code Regs. § 95482 (h) ("hydrogen produced using fossil gas as a feedstock is ineligible for LCFS credit generation **unless** biomethane attributes are matched to the hydrogen production as described in Section 95488.8(i)(2).") (emphasis added).

is highly consequential to the Project and its environmental impacts. Evidence shows that fossil hydrogen production emits a wide range of pollutants, including GHGs and health-harming criteria pollutants like NOx, PM, carbon monoxide ("CO") and volatile organic compounds ("VOCs"), as described in more detail below in Section V. The purchase of biomethane credits does nothing to alter the air quality impacts from fossil hydrogen production in California, as data show that those credits are from out-of-state biomethane sources that do not provide any air quality benefit to California.[108] Their greenhouse gas reduction benefits are also dubious as detailed below.

An accurate project description is "the heart of the EIR process" and "necessary for an intelligent evaluation of the potential environmental effects of a proposed activity." *Sacramento Old City Ass'n. v. City Council* (1991) 229 Cal.App.3d 1011, 1023. CARB's failure to accurately describe the Proposed Amendment's treatment of fossil hydrogen thus violates CEQA.

B. The RDEIA Does Not Properly Analyze and Mitigate the Greenhouse Gas Emissions of Fossil-Derived Hydrogen Paired with Book-and-Claim Biomethane Credits.

The RDEIA fails to adequately analyze the GHG emissions of hydrogen production from fossil methane paired with book-and-claim biomethane credits. Hydrogen produced from fossil methane via steam methane reformation emits GHGs,[109] and the Project assumes that this positive CI can be effectively masked by biomethane credits that have a negative CI.

Evidence shows that such an assumption is incorrect in many instances, as the greenhouse gas benefits of book-and-claim biomethane credits derived from dairies and other sources of biomethane are illusory. For example, recent CARB data call into question the effectiveness of dairy digesters—whose sole purpose is to prevent methane from venting into the atmosphere—in ensuring methane capture. Data show that some farms equipped with digesters are, in fact, venting methane and even considered "mega-emitting" facilities.[110] Also, some digesters that generate

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[108] CARB, Current Fuel Pathways (Jan. 9, 2024 ed.), https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/current-pathways_all.xlsx.(showing that each of the certified hydrogen pathways listed as using biomethane from dairy manure pairs fossil gas feedstocks with unbundled purchases of environmental attributes from Indiana, Wisconsin, New York or Minnesota to earn a negative carbon intensity score, all pathways using swine manure credits are from Missouri, and the only pathway for producing hydrogen that claimed to use biomethane from wastewater sludge was for a fossil steam methane reformation facility that purchases environmental attributes from a water treatment plant in Texas.).

[109] *See* Pinping Sun et al., Criteria Air Pollutants and Greenhouse Gas Emissions from Hydrogen Production in U.S. Steam Methane Reforming Facilities, Env't Sci. & Tech., Vol. 53 Issue 12, (May 24, 2019) ("Sun et al."), https://pubmed.ncbi.nlm.nih.gov/31039312/.

[110] *See* Carbon Mapper Data, https://carbonmapper.org/ (including data files on methane leakage locations); *see also* CARB, Methane Hotspots Research, https://ww2.arb.ca.gov/our-work/programs/methane/ab1496-research; M. Smith, Scientific Aviation, Airborne Methane Emissions Measurement Survey (April 12, 2021) at 1, https://ww2.arb.ca.gov/sites/default/files/2021-05/CARB%20Final%20Final%20Summary%20Report_2021_ADA.pdf (finding the average emission from the dairy/ranch facilities was 271 ± 238 kg h-1 CH4); Food and Water Watch, The Proof Is in the Pluming (Jan. 30, 2024), https://storymaps.arcgis.com/stories/4b708bdc0d2d419ba34cb352ca79b6e3 (finding at least 16 dairy operations participating in the LCFS released massive methane plumes into the atmosphere after their digesters were installed.); Phil Mckenna, "Is California Overstating the Climate

negative CI scores in LCFS were constructed before the LCFS even existed, meaning that their greenhouse gas emissions reductions are not additional to what would have occurred without the LCFS.[111] Further, since there is no centralized system for tracking book-and-claim biomethane credits, the risk of double counting of emissions reductions is high; a credit purchased and paired with fossil methane-derived hydrogen in the LCFS may have already been claimed by another entity as a GHG reduction.

Earthjustice and other parties presented these concerns to CARB, but the RDEIA ignores this evidence and incorrectly assumes that book-and-claim biomethane credits reduce greenhouse gases and are appropriately assigned a negative CI score. CARB's failure to analyze the greenhouse gas emissions of fossil hydrogen paired with book-and-claim biomethane credits violates CEQA.

C. CARB's Failure to Properly Evaluate Greenhouse Gas Impacts of Fossil Hydrogen in the RDEIA Also Renders Its Mitigation Inadequate.

Because CARB has not sufficiently accounted for the greenhouse gas impacts of fossil hydrogen paired with booked-and-claimed biomethane credits, its mitigation of these potentially significant effects is also inadequate. Numerous parties commenting in this rulemaking have called on CARB to avoid the pitfalls associated with book-and-claim biomethane crediting. CARB failed to the adopt feasible mitigation measures that these parties suggested, including the phase-out of avoided methane crediting that assigns negative CI scores to certain biomethane producers and requiring that the biomethane be delivered to California, consistent with the requirements for all other LCFS fuels and with the methods used by all other California programs that use biomethane.[112] CARB's failure to adopt these feasible mitigation measures violates CEQA. Public. Res. Code § 21002.

V. The RDEIA Fails to Adequately Disclose, Analyze, and Mitigate Emissions and Related Health Impacts of Air Pollutants that Will Be Emitted as a Result of the Project.

CARB acknowledges that the Project's long-term operations could result in significant and unavoidable impacts to air quality.[113] However, CARB fails to sufficiently analyze these impacts because it fails to provide sufficient information about the magnitude, severity and health consequences of a wide range of emissions and because its assumptions are outdated. *County of Fresno,* 6 Cal. 5th at 522 ("There must be a reasonable effort to put into a meaningful context the conclusion that the air quality impacts will be significant.); *Cleveland Nat'l Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 514 ("an EIR's designation of a particular adverse environmental effect as 'significant' does not excuse the EIR's failure to reasonably

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Benefit of Dairy Manure Methane Digesters?" (Dec. 30, 2023), https://insideclimatenews.org/news/30122023/milking-it-california-overstating-climate-benefit-dairy-manure-methane-digesters/.

[111] Earthjustice, Comments on the Low Carbon Fuel Standard Staff Report: Initial Statement of Reasons (Feb. 20, 2024) at 37 Table 4, https://www.arb.ca.gov/lists/com-attach/7077-lcfs2024-Wz4BZgd0BCNVOwJo.pdf.

[112] *Id*. at 25–31.

[113] DEIA at 62.

describe the nature and magnitude of the adverse effect"); *Berkeley Keep Jets Over the Bay Com. v. Board of Port Cmrs.* (2001) 91 Cal.App.4th 1344, 1371 ("simply labeling the effect 'significant' without accompanying analysis of the project's impacts … is inadequate to meet the environmental assessment requirements of CEQA").

A. The RDEIA Fails to Analyze Emissions of Numerous Health-Harming Pollutants.

In the RDEIA, CARB limits its analysis to PM and NOx emissions.[114] Yet evidence shows that many other types of air pollutants caused by the Project could have impacts. To take just one example, facilities that manufacture hydrogen from methane using steam-methane reformation—which CARB admits are likely to increase as a result of the Project[115]—emit not only PM and NOx but also other pollutants harmful to human health, including carbon monoxide and volatile organic compounds.[116] CARB entirely fails to account for these emissions. This omission violates CEQA. *See, e.g., Sierra Watch v. County of Placer* (2021) 69 Cal.App.5th 86, 98–99 (finding EIR inadequate because it failed to evaluate a category of pollutants that would result in environmental impacts due to increased vehicle miles traveled ("VMT") resulting from the Project).

B. CARB's Failure to Update Its Health Impact Analysis Is in Error.

The RDEIA improperly bases its analysis of health impacts on the evaluation conducted in 2023 in connection with the SRIA[117] despite the fact that the Proposed Amendments differ significantly from the SRIA in ways that could affect emissions and their health impacts. For example, the Proposed Amendments extend crediting periods for certain biomethane pathways for many years beyond the time period contemplated in the SRIA.[118] As detailed by LCJA, the LCFS's crediting of large dairy operations has a wide range of air quality and health impacts.[119] It follows that the Project's extension of the timelines for these credits increase health impacts, rendering the SRIA's health assessment outdated and inadequate.[120]

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[114] RDEIA at 45–53.

[115] RDEIA at 31 ("Potential compliance responses to the Proposed Amendments could include the construction of new or expanded hydrogen production facilities, using steam methane reformation, electrolysis, or gasification technologies.").

[116] *See* Sun et al., *supra* note 109.

[117] RDEIA at 45.

[118] The LCFS September 2023 SRIA noted that avoided methane crediting would be phased out of dairy and swine projects by 2040. CARB, SRIA at 9, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/appc-1.pdf. However, the 15-day change allows avoided methane for projects through 2050, 2045, and 2040, depending on the project. *See* CARB 15-Day Change Proposal at 170-172, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/lcfs2024/15day_atta-1.pdf (showing changes to changes to 17 Cal. Code Regs sections 95488.9(f)(3).).

[119] *See* LCJA, Comments on the Proposed Amendments to the Low Carbon Fuel Standard (Feb. 20, 2024) at 2–5, www.arb.ca.gov/lists/com-attach/app-zip/6969-lcfs2024-Am5RNFA3WXkGX1Az.zip.

[120] A former Branch Chief of the LCFS, Dr. James Duffy, also pointed out in comments CARB's failure to update its modeling assumptions between the SRIA and ISOR and noted that this failure would render the air quality analysis inadequate. *See* Comments of James Duffy on ISOR (Feb. 19, 2024), https://www.arb.ca.gov/lists/com-attach/6792-lcfs2024-AWUGdQdgVmMHeAZZ.pdf ("CARB did not update the CATS model, rerun the Proposed Amendments scenario, and update the economic and air

CARB's failure to update the Health Impact Analysis and accurately describe the health impacts of the Project based on the Project's specific parameters violates CEQA. *See County of Fresno*, 6 Cal. 5th at 518 ("When reviewing whether a discussion is sufficient to satisfy CEQA, a court must be satisfied that the EIR… makes a reasonable effort to substantively connect a project's air quality impacts to likely health consequences.").

V. The RDEIA Fails to Adequately Disclose, Analyze and Mitigate Impacts from Reliance on Direct Air Capture.

The EIA fails to adequately disclose, analyze, and mitigate the potential impacts stemming from the reliance on DAC technology. While the EIA acknowledges that DAC projects will involve substantial infrastructure development, including CO2 pipelines, transportation, and energy demands, it does not adequately examine how these projects will be powered or the associated environmental effects.

CARB's assumption that DAC will be powered by zero-carbon electricity is speculative and unsupported by the analysis presented. As with electrolytic hydrogen, the Proposed Amendments include a "book-and-claim" accounting method for low-CI electricity used in DAC projects that allows for the environmental attributes of low-CI electricity to be separated from its physical generation. Such accounting creates a potential mismatch between the power sourced for DAC and the actual grid mix, which could include fossil fuels, and CARB allows for temporal matching over three quarters rather than hourly. As explained above in Section III, hourly matching is required to avoid greenhouse gas emissions increases. Thus, electricity used to power DAC in the Project could result in higher actual greenhouse gas emissions than projected in the RDEIA, and utility and system impacts that the RDEIA does not address.

The RDEIA's treatment of DAC is also counter to the 2022 Scoping Plan update, which indicates that DAC is intended to mitigate residual or legacy emissions, not to offset emissions that can otherwise be reduced through other means.[121] As modeled in the ISOR proposed scenario and the 15-day change proposed scenario, fossil fuel use increases at the same time DAC enters the program, despite a decline in diesel fuel demand, suggesting that DAC is used as an offset to fossil fuel use, rather than addressing emissions that cannot otherwise be mitigated. Indeed, CARB states in the ISOR that "[a]fter 2040, the CATS model predicts the costs for DAC will be lower than the costs of obtaining credits directly from low-CI fuel producers. As a result, the latter years of the assessment are characterized by high production costs for high-CI fuel producers, but less benefits overall for low-CI fuel producers."[122] The Proposed Amendments and RDEIA do not alter this ISOR conclusion.

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quality analyses between the submission of the SRIA … in September and release of the rulemaking package in January. During this period, a few changes were made to the proposed amendments. The most significant of these changes were to grandfather all pre-2030 dairy and swine projects from the proposed phaseout of avoided methane and to grandfather all pre-2030 RNG projects from the proposed deliverability requirements."). As Dr. Duffy notes, "the air quality analyses presented in the ISOR and Draft EIA do not reflect the actual LCFS amendments proposal." The RDEIA has failed to correct this error.

[121] CARB, Scoping Plan (2022) at 67, https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf.

[122] CARB, LCFS ISOR at 71.

Despite this offsetting outcome, CARB fails to analyze DAC's effects in the RDEIA. Under the proposed scenario modeling as part of the 15-day change proposal, DAC credits account for nearly 14 million MTCO2e. That is more credits than were issued during the first four and a half years of the LCFS program.[123] Yet CARB fails to account for the fact that such crediting runs counter to the intent of the regulation to decarbonize the California transportation sector and that by allowing DAC to offset fossil fuel use, CARB is sacrificing needed local air quality emission reductions. Further, for any DAC projects located outside of California, the emissions reductions would not be captured in the State's GHG emissions inventory, making it more difficult to meet any climate goals and thus increasing the significant effects of the proposed project**.**

Finally, because CARB failed to adequately analyze the impacts of DAC, it also failed to propose necessary mitigation such as limits on the use of DAC in the LCFS program.

VI. The RDEIA Fails to Adequately Analyze Alternatives.

The RDEIA's analysis of alternatives falls short. Under CEQA, a proper analysis of alternatives is essential to comply with the Act's mandate that significant environmental impacts be avoided or substantially lessened where feasible. Pub. Res. Code § 21002; CEQA Guidelines §§ 15002(a)(3), 15021(a)(2), 15126(d); *Citizens for Quality Growth v. City of Mount Shasta* (1988) 198 Cal.App.3d 433, 443–45. Indeed, the analysis of alternatives lies at the "core of an EIR." *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564. As stated in *Laurel Heights Improvement Association*, "[w]ithout meaningful analysis of alternatives in the DEIR, neither the courts nor the public can fulfill their proper roles in the CEQA process . . . . [Courts will not] countenance a result that would require blind trust by the public, especially in light of CEQA's fundamental goal that the public be fully informed as to the consequences of action by their public officials." 47 Cal.3d at 404. Properly developing, evaluating, and comparing project alternatives is thus key to the environmental review process. However, the RDEIA suffers from an inadequate analysis of the Project alternatives as discussed below.

A. CARB's Use of a Model that is Incapable of Forecasting Increased Deployment of Zero-Emission Vehicles Irrespective of Credit Prices or Subsidies Fundamentally Compromises the Integrity of the Alternatives Analysis.

CARB developed the California Transportation Supply ("CATS") model "to support evaluation of the California fuel market and to assess the economic feasibility of potential updates to the program."[124] Staff first described and published information on the CATS model in November 2022[125] and updated the model in February 2023.[126] The CATS model is an optimization model that selects the lowest-cost approach for compliance with annual fuel demand

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[123] According to CARB's data, Q1 2011 through Q2 2015, CARB issued nearly 13.5 million credits. *See* CARB, LCFS Quarterly Data Spreadsheet at Fuels tab, C19-T19 (Q1 2011 through Q2 2015), https://ww2.arb.ca.gov/sites/default/files/2024-08/quarterlysummary_Q12024.xlsx.

[124] *See* https://content.govdelivery.com/accounts/CARB/bulletins/368995a.

[125] *See* https://ww2.arb.ca.gov/resources/documents/lcfs-meetings-workshops-archive. CATS technical documentation is available in the workshop materials: https://ww2.arb.ca.gov/sites/default/files/2022-11/CATS%20Technical.pdf.

[126] *See* https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard/lcfs-meetings-and-workshops. CATS technical documentation is available in the workshop materials: https://ww2.arb.ca.gov/sites/default/files/2023-08/CATS%20Technical_1.pdf

and CI goals, based on supply and cost assumptions. The model outputs the volume of feedstock-fuel volumes, credit and deficits generated, LCFS credit prices, and GHG emission estimates.[127] CARB uses the model to assess the outcomes of the Project and alternatives, including GHG and air quality benefits.[128]

While CATS can simulate market responses for fuels like RD, CARB incorporated static energy demands into the model when assessing ZEV deployment. In other words, the CATS model CARB uses to assess Project alternatives does not allow for increased deployment of ZEVs irrespective of credit prices or subsidies. This leads CARB to simplistically conclude fossil fuel use would increase when, in fact, EV deployment could increase to compensate for reduced use of biofuels. For instance, were CARB to cap biofuels, CATS is unable to select additional electric vehicle use as an alternative. CARB has not explained why ZEV deployment is restricted to predetermined numbers, nor has it justified this arbitrary ZEV cap, which prevents the model from considering alternatives where ZEVs could compensate for policies that limit credit generation from other, harmful, fuels.

In locking-in electricity use when modelling the feasibility of alternatives,[129] CARB failed to credibly assess alternatives to achieve emissions reductions through expanded ZEV use. CARB's modelling failure renders the EIA's alternatives analysis wholly deficient. Understanding how alternatives would provide ZEVs a greater share of LCFS funds and incentivize their deployment is critical to any legitimate evaluation of Project alternatives. This renders the model's predictions inaccurate and invalid for CEQA purposes.

Indeed, CARB developed the CATS model with the knowledge that EVs would be a critical component of the regulation, yet the scenario fails to account for the billions of dollars expected to be generated through LCFS—funds that would logically have a substantial impact on EV penetration. The LCFS requires electricity credits to be used to further EV transportation.[130] It is inconceivable that CARB could suggest that such significant funding would have no effect on ZEV adoption. As evidenced by recent data, ZEV sales in California remain strong and are outpacing

[127] The output spreadsheets listed in CARB's Supplemental materials are from CATS modeling: https://ww2.arb.ca.gov/resources/documents/supplemental-20232024-lcfs-modeling-documentation. Also, CATS outputs are shown in slides 14 and 18 in the February 2023 workshop materials: https://ww2.arb.ca.gov/sites/default/files/2022-11/LCFSPresentation.pdf, available on the LCFS workshops page: https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard/lcfs-meetings-and-workshops.

[128] In CARB's Air Quality Analysis Workbook from 15-day Package, CATS model outputs are used to determine, with other factors, the NOx and PM emissions, https://ww2.arb.ca.gov/sites/default/files/2024-08/2024%20LCFS_Amendments_Air_Quality_Calculations_15Day%20Proposed_1.xlsx.

[129] CARB's model uses outdated ZEV stock estimates from the 2022 Scoping Plan, which fail to reflect recent increases in ZEV adoption. Given that ZEV penetration is outpacing mandated goals, static estimates prevent a realistic assessment of ZEV market dynamics. CARB's model locks in outdated assumptions, capping ZEV deployment at levels already surpassed in real-world data, as noted in the Advanced Clean Cars II and Advanced Clean Fleets regulations.

[130] 17 Cal. Code Regs § 95483(c)(1)(A) for residential EV charging base credits to EDUs; *id*. at § 95483(c)(1)(D)(1) for residential EV charging credits to Original Equipment Manufacturers.

mandated goals, further underscoring the potential impact of increased funding on ZEV penetration.[131]

CARB's analysis further prejudices electrification-focused alternatives because CARB neither evaluates nor incorporates its own funding mechanism into the model as described above, nor other subsidies and incentives related to ZEV deployment.[132] Yet, CARB includes subsidies, including the RFS, which benefits biodiesel, renewable diesel, ethanol, SAF, and dairy CNG; and Inflation Reduction Act tax credits, which benefit SAF, DAC, ethanol with carbon capture and storage, and hydrogen including that made from dairy gas.[133] Including subsidies effectively lowers the cost of producing the fuels or deploying the technology. As CATS is a least-cost model, subsidies affect which fuels are most cost-effective to produce. For example, CATS includes a DAC subsidy of $130 per metric ton of CO2 captured for enhanced oil recovery projects.[134] However, no analysis or discussion occurred regarding the additional potential ZEVs that could be supported through the proposed Clean Fuels Reward to provide rebates for transitioning unregulated trucks to ZEV nor for holdback funds that could also provide vehicle and infrastructure rebates. It is inexplicable how CARB can omit a major funding opportunity from its own program; and CARB provides no justification in the EIA. This omission contradicts basic economic principles that when subsidies lower ZEV costs, adoption should increase. It is a fundamental flaw in the model and any conclusions resulting from the model.

Accordingly, because the model CARB used to assess alternatives does not assess how limits to biofuels can benefit increased deployment of ZEVs, CARB's alternatives analysis is fatally compromised. For example, in rejecting an alternative that would limit crediting opportunities for problematic fuels such as the avoided methane credits the program currently awards to biomethane generated from manure lagoons in factory farms, CARB claims that "[t]he loss of some of the crediting opportunities for low-CI fuel would make it difficult to meet the proposed" CI targets.[135] This conclusory assertion lacks credibility and precludes informed decision-making because CARB's underlying analysis does not assess how limited credits for problematic fuels under this alternative could increase opportunities for electric vehicle deployment.

B. CARB's Rejection of Alternative 2's Elimination of Credit Generation from Direct Air Capture Lacks an Evidentiary Basis.

The DEIA purports to assess Alternative 2, which would phase out avoided methane crediting in 2025, apply deliverability requirements to biomethane and biomethane produced

[131] CEC, Zero-Emission Vehicle Sales Remain Strong in California (May 2024) https://www.energy.ca.gov/news/2024-05/zero-emission-vehicle-sales-remain-strong-california.
[132] The Inflation Reduction Act of 2022 includes multiple Clean Vehicle and Alternative Fuel Vehicle refueling Property Tax credits. *See* https://www.irs.gov/credits-and-deductions-under-the-inflation-reduction-act-of-2022.
[133] Described in the CATS technical documentation and shown in CARB's Scenario Inputs Spreadsheets under the Fuel Production tab. *See* CARB, California Transportation Supply Model Documentation at 6, 19-23 (Aug. 2023), https://ww2.arb.ca.gov/sites/default/files/2023-08/CATS%20Technical_1.pdf.
[134] CARB, California Transportation Supply Model Documentation at 20 (Aug. 2023), https://ww2.arb.ca.gov/sites/default/files/2023-08/CATS%20Technical_1.pdf; *see also* CARB, 15-day Proposed Scenario Input sheet at M38-54, https://ww2.arb.ca.gov/sites/default/files/2024-08/15Day_Proposed_9step_30_final_posted_0.xlsx.
[135] DEIA at 176.

hydrogen, and eliminate credit generation from DAC.[136] In addition to CARB's failure to assess how these changes could result in increases in ZEV deployment, CARB rejects this alternative on the ground that "[e]liminating credits for DAC projects … jeopardizes the feasibility of achieving California's long-term decarbonization targets and the 2045 carbon intensity target proposed under this project."[137] However, CARB has not actually evaluated this stated alternative. CARB claims that the exclusion of DAC would make it challenging to achieve the proposed 90% CI reduction by 2045, stating: "compliance with the regulation is difficult without direct air capture, so this scenario risks creating demand for credits that exceeds available supply beyond 2030."[138] Yet this assertion is not adequately supported by the modeling provided, and the conclusions are misleading.

Per CARB's modeling of the 15-day change Proposed Scenario released on August 12, 2024, DAC credits are introduced into the program only after 2040.[139] The LCFS currently allows 10 million advanced credits in the program, which could be adjusted to accommodate the potential for additional credits needed.[140] CARB thus fails to consider how advance crediting can offset any losses from purported reductions from DAC. Additionally, the modeling for Alternative 2 still includes 49 million metric tons of DAC credits between 2041-2045, rendering conclusions from the analysis incomplete.[141] Moreover, the LCFS program has been adjusted multiple times to account for changing conditions, such as unexpectedly high RD volumes, and changing regulations, such as Advanced Clean Cars II. Given the uncertainties in what technologies will prove more cost-effective and what additional regulations may be in place between now and 2040, the potential for DAC in 2040 is not a basis to reject an environmental justice-focused alternative.

C. CARB Fails to Describe a Reasonable Range of Alternatives

CEQA requires CARB to describe a range of "reasonable alternatives to the project," which would "attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effect of the project," and evaluate the "comparative merits" of the alternatives. 14 Cal. Code. Regs. § 15126.6. This discussion is "the core" of CEQA analysis.

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[136] *Id.* at 174. The RDEIA does not alter or update this analysis.
[137] *Id.* at 176.
[138] *Id.*
[139] CARB, Proposed Scenario output sheet at Row 54, DACCs credit quantity, https://ww2.arb.ca.gov/sites/default/files/2024-08/15Day_Proposed_9step_30_final_posted_0.xlsx. DACCS stands for "Direct Air Capture of Carbon Dioxide paired with Storage."
E3, Achieving Carbon Neutrality in California at 4 (Oct. 2020), https://ww2.arb.ca.gov/sites/default/files/2020-10/e3_cn_final_report_oct2020_0.pdf.
[140] CARB, Public Workshop: Auto-Acceleration Mechanism and Step Down Benchmark Considerations, (May 23, 2023) at slide 37, https://ww2.arb.ca.gov/sites/default/files/2023-05/LCFSPresentation_052223_0.pdf (identifying changing the advanced credit limits beyond 10 million in their May, 2023, workshop, related to the AAM.),
[141]CARB, Proposed Scenario output sheet at Row 56, DACCS credit quantity https://ww2.arb.ca.gov/sites/default/files/2024-04/ISOR_Alt2_output.xlsx. DACCs is defined as Direct Air Capture of Carbon Dioxide paired with Storage in other documents. *See* E3, Achieving Carbon Neutrality in California report (2020) at 4, https://ww2.arb.ca.gov/sites/default/files/2020-10/e3_cn_final_report_oct2020_0.pdf..

Citizens of Goleta Valley v. Board of Supervisors (1990) 52 Cal.3d 553, 564. The RDEIA's alternatives analysis fails to meet that requirement here.

As an initial matter, the RDEIA's failure to disclose the extent and severity of the Project's widespread impacts necessarily distorts CARB's analysis of Project alternatives. As a result, the alternatives are evaluated against an inaccurate representation of the Project's impacts and the model's inability to model how Project changes could accelerate electric vehicle deployment precludes an informed assessment of alternative benefits. Moreover, the DEIA's alternatives analysis (unaltered in the RDEIA) presents a series of false choices that rests on the assumption that the only method by which the State can achieve its methane emissions reduction goals is through the LCFS's indirect, incentive-based regulation. Each alternative scenario is simply a version of the LCFS with different requirements than the Proposed Amendments. The DEIA fails to analyze a scenario where CARB uses its regulatory authority to directly control emission sources such as methane produced by factory farms.

Finally, the EIA fails to evaluate a scenario designed to direct a significant majority of LCFS revenue to ZEVs and public transit. The exclusion of this alternative is particularly problematic given that it directly aligns with California's goals to transition to 100 percent zero-emission vehicles[142] and the fact that in 2022, roughly 80% of LCFS's $3-4 billion in annual revenues went to combustion fuels like RD and BD rather than ZEVs.[143] Neither the DEIA nor the RDEIA alternatives analyses evaluates a scenario where the growth of ZEVs is accelerated, despite the fact that such a scenario could feasibly attain the objective of significant CI reductions, significantly improving air quality, and mitigating the need for non-transportation-related technologies like DAC. This alternative could be achieved through a combination of measures including effective restrictions on crop-based biofuels, such as a cap on volumes, which the alternatives analysis does not evaluate. Furthermore, the omission of a ZEV-focused alternative disregards the potential for increased electrification to serve as a substantial mitigation measure for the proposed Project's significant impacts. This failure to analyze a reasonable ZEV-focused alternative results in an incomplete and legally deficient EIA under CEQA.[144]

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[142] Exec. Order N-79-20, https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf.

[143] *See* CARB, LCFS Data Dashboard, Figure 10b (showing over 80% of biomethane from out-of-state), https://ww2.arb.ca.gov/resources/documents/lcfs-data-dashboard

[144] Finally, CARB's modeling in the RDEIA also lacks support and violates CEQA because it assumes that the credit price will be $0 in numerous years in the near future but fails to describe this feature of the Project and analyze the associated, reasonably foreseeable impacts. As modeled, the Proposed Scenario in the 15-day Proposal shows credit prices of $0 in 2029, 2030, 2031 and 2032. *See* CARB, Modeling Output Sheets from 15-Day Package, Proposed Scenario at Row 51, https://ww2.arb.ca.gov/sites/default/files/2024-08/15Day_Proposed_9step_30_final_posted_0.xlsx. First, CARB does not explain how the Project can properly claim greenhouse gas benefits (or any other benefit) if it no longer provides a subsidy to purportedly cleaner fuels (due to the $0 credit price). Second, given the $0 credit price modeling result, it is likely that the AAM will be triggered at least once before 2030, generating a step-down of the CI stringency that has not been modeled by CARB in the RDEIA. Such a step down is foreseeable because a $0 credit price is inconsistent with the objective of the Project to raise the credit price and send a market signal to investors who need long-term certainty for high-cost projects. The RDEIA does not describe this outcome in the project description or properly analyze its impacts, including effects that are reasonably foreseeable. These failures violate CEQA.

VII. A Revised EIA Must Be Recirculated for Public Review and Comment.

Because of the inadequacies discussed above, the RDEIA cannot form the basis of a final EIA. CEQA requires lead agencies to prepare and recirculate a supplemental draft "[w]hen significant new information is added to an environmental impact report" after public review and comment on the earlier draft. Pub. Res. Code § 21092.1. The opportunity for meaningful public review of significant new information is essential "to test, assess, and evaluate the data and make an informed judgment as to the validity of the conclusions to be drawn therefrom." *Sutter Sensible Planning, Inc. v. Sutter County Board of Supervisors* (1981) I22 Cal.App.3d 813, 822; *see also City of San Jose v. Great Oaks Water Co*. (1987) 192 Cal.App.3d 1005, 1017. An agency cannot simply release a draft report "that hedges on important environmental issues while deferring a more detailed analysis to the final [EIR] that is insulated from public review." *Mountain Lion Coalition v. California Fish and Game Comm'n* (1989) 214 Cal.App.3d 043, 1052.

To cure the flaws in the RDEIA identified in this letter, CARB must obtain substantial new information to adequately assess the proposed Project's environmental impacts, and to identify effective mitigation and alternatives capable of alleviating the Project's significant impacts. This new information will clearly necessitate recirculation. CEQA requires that the public be given a meaningful opportunity to review and comment upon this significant new information in the form of a second recirculated draft EIA.

VIII. Conclusion

For all of the reasons described above, the RDEIA fails to comply with the requirements of CEQA. We respectfully request that CARB correct these errors and recirculate a revised draft EIA for public review and comment.

We reserve the right to identify new issues, provide additional information, and propose additional mitigation measures during the CARB ongoing decision-making process for the Proposed Amendments. In a subsequent transmittal, Earthjustice will submit the materials cited herein for inclusion in the record of this rulemaking.

Sincerely,

/s/ Nina Robertson

Nina Robertson
Matt Vespa
Earthjustice
50 California, Suite 400
San Francisco, CA 94111