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VIA ELECTRONIC FILING
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The Honorable Liane M. Randolph, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Gevo, Inc.'s Comments on 15-Day Notice of Changes to the Proposed Low Carbon Fuel Standard Amendments

Dear Chair Randolph:

Gevo, Inc. (Gevo) appreciates this opportunity to comment on the California Air Resources Board (CARB) 15-Day Notice of Changes to the Proposed Low Carbon Fuel Standard (LCFS) Amendments (hereinafter "15-Day Notice"). Gevo submitted comments on CARB's proposed LCFS amendments on February 20, 2024, and on the content of the CARB Workshop held on April 10, 2024, and we incorporate those comments here by reference.[1] Although we continue to urge CARB's consideration of all of the comments we previously submitted, the comments here relate to areas elaborated in the 15-Day Notice, as specified by CARB in its Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information Proposed Low Carbon Fuel Standard Amendments.[2]

As a refresher, Gevo's mission is to produce low-carbon, renewable energy-dense liquid hydrocarbons for drop-in transportation fuels such as gasoline, jet fuel, and diesel. Our alcohol-to-hydrocarbons production process uses a combination of decarbonization technologies and sustainably farmed feedstock to produce fuels with substantially

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[1] *See* Gevo, Inc.'s Comments on "Proposed Amendments to the Low Carbon Fuel Standard" (February 20, 2024) (available as Comment #196 in CARB's Public Comments Received portal) and Gevo, Inc.'s "Comments on the Low Carbon Fuel Standard Workshop, April 10, 2024" (May 10, 2024) (available in CARB's LCFS Meetings and Workshops portal).

[2] CARB, Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information Proposed Low Carbon Fuel Standard Amendments, at 2 (August 12, 2024) (noting that "staff will only address comments received during this 15-day comment period that are responsive to this notice.")

reduced carbon intensity (CI) compared to fossil fuel equivalents. We broke ground on our first alternative jet fuel (AJF)/sustainable aviation fuel (SAF)[3] production facility, "Gevo Net-Zero 1" (NZ1), in Lake Preston, South Dakota, in September 2022. This facility will use a three-part strategy to produce low-CI SAF: 1) use locally-sourced corn feedstock from farmers engaged in sustainable agriculture to both reduce on-farm greenhouse gas (GHG) emissions and sequester carbon dioxide (CO_2) in the soil; 2) decarbonize the fuel production process by replacing conventional fossil fuel inputs with wind energy, renewable natural gas, and green hydrogen; and 3) use carbon capture and sequestration (CCS) technology to reduce emissions from the production process further. The Gevo approach is aimed at decarbonizing every step in our SAF's life cycle, which we track all the way from the farm field through to the aircraft using our Verity Tracking platform.

Gevo currently is participating in the LCFS through our production of renewable natural gas (RNG) from three dairies, for which we installed dairy-manure biomethane capture and upgrading equipment, thereby producing pipeline quality RNG rather than allowing the methane from the manure to continue to be released from the dairy lots. In addition, we intend to submit a Tier 2 LCFS Provisional Pathway application for the SAF, renewable diesel, and renewable naphtha fuels that will be produced at the NZ1 facility, utilizing our field corn starch feedstock and alcohol-to-jet (ATJ)/alcohol-to-hydrocarbons production process.

I. Gevo Strongly Supports CARB's Proposal for a Nine Percent Near-Term CI Benchmark Stringency Increase (Section 95484(d)-(f))

In both of our earlier sets of comments, Gevo supported CARB's intent to provide a near-term CI stringency increase (i.e., "stepdown") in tandem with a strengthening of the overall compliance curve and adoption of an Automatic Acceleration Mechanism (AAM), while also urging CARB to go farther in increasing the stringency of these provisions. Accordingly, we welcome and strongly support CARB's 15-Day Notice proposal for a near-term stepdown of nine percent, rather than the five percent CARB originally proposed.

As noted in our previous comments, the five percent and seven percent stepdown options that CARB analyzed would be insufficient to address the excess credit buildup in

[3] Gevo typically uses the term "sustainable aviation fuel" or "SAF" to refer to our fuel. This fuel meets the definition of "alternative jet fuel" (AJF) as set forth in the LCFS regulations. Accordingly, our references to SAF in this comment letter should be deemed synonymous with AJF.

the bank that weakens the effectiveness of the LCFS, even if accompanied with an AAM trigger. While we continue to believe that a stepdown of ten to eleven percent would be supportable based on the ICF analysis presented to CARB,[4] the nine percent option is the most preferable of the options CARB assessed as it is projected to result in credits closer to the demand to be sparked by the compliance curve. Therefore, we strongly support this proposal and urge CARB to adopt it.

II. Gevo Supports the Tier 2 and Renewable Diesel Definition Proposed Changes Recognizing Alcohol-to-Hydrocarbons Pathways and Urges Further Alignment of the Renewable Naphtha Definition

In various places in the initial LCFS proposal, provisions enumerated certain production processes, seemingly omitting alcohol-to-hydrocarbons fuels pathways. As noted below, Gevo supports the proposal to expressly include the alcohol-to hydrocarbons pathway in the Tier 2 classification provisions. Further, we support CARB's proposal to make the "renewable diesel" definition process- and feedstock- neutral and we urge CARB to do the same with the "renewable naphtha" definition.

- CARB's Inclusion of Alcohol-to-Hydrocarbons in the Tier 2 Classification Provisions (Section 95488.1(d)(4)): While Gevo understood that the Tier 2 pathway classification might not be limited to the production processes listed in this section of the originally proposed regulation, we expressed concern in our earlier comments that the omission of the alcohol-to-hydrocarbon conversion process might be misread as an exclusion. Therefore, we support and appreciate CARB's proposal in the 15-Day Notice to add this pathway to the list of drop-in fuels. We also appreciate CARB's recognition in the Notice of Public Availability document that alcohol-to-hydrocarbon conversion is one of the ways in which SAF can be produced.[5]

- The Proposed Revision of the Definitions of "Renewable Diesel" and "Renewable Naphtha" (Section 95481(a)): CARB's original proposal for the "renewable diesel" and "renewable naphtha" definitions would import specific feedstocks and production pathways (i.e., hydrotreated lipids and biocrudes or from gasified biomass converted using the Fischer-Tropsch process and portions from co-processing) into these definitions. Concerned that the proposed definitions would

[4] As we laid out in our February 20 comments, ICF's analysis demonstrates that "a stepdown of at least 10.5% in 2025 likely is needed to ensure that the credit bank reverses and is drawn down to the level necessary to continue to incentivize LCFS-driven emissions reductions, i.e., with the credit bank holding approximately two to three quarters' worth of deficits."

[5] CARB, Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information Proposed Low Carbon Fuel Standard Amendments, at 10.

exclude feedstocks and production pathways such as Gevo's feedstock (corn starch) and production process (the alcohol-to-hydrocarbons conversion process), we urged CARB to make the definitions feedstock and pathway neutral. As we explained in our comments, renewable diesel and renewable naphtha are hydrocarbon fuels that are produced alongside our SAF/AJF in alcohol-to-hydrocarbons production facilities.

We are pleased that CARB provided a new proposal for the "renewable diesel" definition in the 15-Day Notice that would make it process- and feedstock-neutral. However, CARB has not proposed a corresponding change to the "renewable naphtha" definition. As we had noted in our previous comments, there is no rational reason for excluding from CA-LCFS eligibility the renewable naphtha from a process such as Gevo's. Accordingly, we urge CARB to also make the "renewable naphtha" definition neutral as to non-petroleum feedstocks and production processes.

III. CARB Should Not Limit the Time Period of Eligibility for Avoided Methane Projects as Proposed in the 15-Day Notice (Section 95488.9(f)(3)(A))

In the 15-Day Notice, CARB proposes to reduce the total number of crediting periods for pre-2030 avoided methane emissions projects from dairy and swine manure and landfill-diverted organic waste disposal to two 10-year crediting periods, rather than the three 10-year periods in the original LCFS proposal. Gevo opposes this proposed change. Accordingly, we urge CARB to discard this new proposal and to revert to the original proposal.

As noted, Gevo participates in the LCFS via the RNG captured from three dairies, for which we installed dairy manure biomethane capture and upgrading equipment, thereby producing pipeline quality RNG rather than allowing the methane from the manure to continue to be released to atmosphere. LCFS policies create incentives for dairy farmers to capture methane emissions from their cows to convert into biogas. As CARB has recognized, "capturing methane from dairies is one of the primary measures for achieving the state's 2045 greenhouse gas reduction targets and SB 1383 methane reduction target."[6] In addition, we note that use of dairy digesters creates synergistic environmental benefits, as farmers can generate soil amendments that provide nutrients and decrease the amount of fertilizer needed.[7]

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[6] California Air Resources Board, "Proposed Amendments to the Low Carbon Fuel Standard Initial Statement of Reasons," Dec. 19, 2023, at page 124.

[7] See, e.g., University of California, Agriculture and Natural Resources, "California Dairy Farmers Generate Renewable Energy from Waste," (Nov. 3, 2023) available at https://ucanr.edu/News/?postnum=58234&routeName=newsstory.

In our February 20 comments on the LCFS proposal, Gevo supported CARB's proposal to continue avoided methane crediting, including for dairy RNG, and we urged CARB to decline to impose time limits (or other restrictions) on such crediting. As we noted, dairy manure methane avoidance projects such as ours require significant capital investment and carry with them significant ongoing operating costs. Accordingly, limits on the crediting period for such projects not only inhibit initial investment but can also threaten the viability of continuing methane avoidance operations over time. Accordingly, CARB's 15-Day Notice proposal to limit the crediting periods for these avoided methane projects would unnecessarily limit the viability of these important projects and the climate benefits they bring.

CARB asserts in the 15-Day Notice of Public Availability document that two 10-year crediting periods "still provid[es] an incentive to develop methane capture projects."[8] Yet no support is provided for this assertion. CARB further asserts that the "proposed modifications to the proposed credit true-up concept in section 95488.10(b)" will "ensure sufficient return on investment for fuel pathways reporting using temporary fuel pathways."[9] While, as detailed below, Gevo supports CARB providing an extended opportunity for credit true-ups, as Gevo had explained in its previous comments, such true-ups are warranted even with the previously proposed three 10-year crediting periods. Again, Gevo urges CARB to withdraw the proposal to limit the crediting periods and to revert to the original proposal.

IV. Gevo Supports CARB's Proposal to Extend the Credit True-Up Periods for Temporary Pathways, with a Two-Year Lookback (Section 95488.10(b))

As we noted in our February 20 comments, Gevo supports a credit true-up in the LCFS program for all pathways – including for dairy RNG. Accordingly, we support CARB's proposal in the 15-Day Notice for a true-up for temporary pathways, with data-based true-ups to be initiated by reports submitted in 2025. As we understand the proposal, CARB would authorize true-ups for data reports submitted in 2025 to cover the 2023 through 2024 time-period (e.g., report submitted March 31, 2025, covering 2023-2024, with the true-up back to 2023).

Gevo strongly supports this proposal with a two-year lookback. With specific respect to our RNG operations, we note that the RNG temporary pathway score of -150 CI for swine and dairy manure biomethane projects is more than 50% greater than the actual

[8] CARB, Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information Proposed Low Carbon Fuel Standard Amendments, at 12.

[9] *Id.*

CI of Gevo's operating facility. As CARB recognized in the Notice of Public Availability, the true-up for temporary pathways "enables the eventual recovery of credits based on verified operational data" and such true-ups are expected to "alleviate or mitigate any business impacts associated with a delay in pathway certification" allowing "recognition for the full amount of climate benefit of a fuel."[10] A two-year lookback supported by operational data is duly warranted due to the length of time required for pathways to receive initial CARB review, undergo a completeness evaluation and finally receive a full review. Indeed, by allowing such true-ups from temporary CI's, CARB would allow fuel producers like Gevo to be credited for the actual climate value of these projects, thereby supporting and promoting investment in climate mitigating projects and advancing California's emissions reduction efforts.

V. Gevo Is Committed to Strong Sustainability and Tracking Requirements, but Urges CARB to further Refine the Proposed Crop-Based Biomass Sustainability Provisions (Section 95488.9(g))

As Gevo explained in our February 20 comments on the original LCFS proposal and in our comments on the content of the April 10 workshop, Gevo is fully committed to providing low-carbon, sustainable SAF and other renewable fuels and to meeting appropriately tailored regulatory requirements for demonstrating sustainability. Against that backdrop, we respectfully submitted that CARB's original sustainability certification proposal for crop- and forestry-based feedstocks was unduly vague and not fit for purpose, urging CARB to convene a stakeholder process to flesh out an appropriately tailored approach to sustainability certifications that would include crediting the emissions reductions from climate-smart agriculture.

While CARB has not convened a stakeholder process to flesh out the proposed sustainability provisions or established crediting for emissions reductions from climate-smart agriculture as Gevo advocated, Gevo notes the progress CARB has made in the 15-Day Notice in terms of providing more detail and more practicable implementation steps for the sustainability certification provisions. We appreciate that CARB has provided some specifics, such as the provision stating that "biomass used in fuel pathways must only be sourced on land that was cleared or cultivated prior to January 1, 2008," and set out a transition to full sustainability certification from 2026 to 2028 to 2031.

Although CARB's 15-Day Notice proposal is an improvement relative to the original proposal, we respectfully submit that it still needs significant work. As detailed below, the proposed sustainability criteria that California is seeking to satisfy remain unduly

[10] CARB, Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information Proposed Low Carbon Fuel Standard Amendments, at 13.

vague and several areas in the proposed regulatory provisions appear to have errors. Further, to the extent that CARB is requiring sustainability certification and tracking of crop-based feedstocks, CARB also should credit the emissions reductions from climate-smart agriculture practices covered by the sustainability and tracking provisions.

A. The Sustainability Criteria Remain Unduly Vague

As noted, Gevo supports and is committed to fully meeting appropriate sustainability criteria. Unfortunately, what CARB has proposed in the 15-Day Notice still misses the mark. CARB has failed to fully define the problem it purportedly is trying to solve and, relatedly, has failed to provide an appropriately defined solution. During the April 10 LCFS Workshop, CARB repeated that its main objective in proposing sustainability certification for fuels that use crop-based (and wood-based) feedstocks is to ensure "biofuel production must not come at the expense of deforestation or food production."[11]

In terms of defining the problem, virtually all the data CARB presented at the Workshop about the potential for crop-based feedstocks to negatively affect food and forests discussed crop-based oil seeds and virgin oil. Notably, Gevo's process uses only residual starch from low-carbon corn, first ensuring that the protein from the corn goes to food and feed uses. Yet, there was no mention of corn starch feedstock creating impacts of concern in the slides presented by CARB.[12] In fact, U.S. corn production has long had multiple uses in food, feed, and fuel and has not resulted in increased land use, nor has it negatively affected food prices.[13] Since 1920, U.S. farmers have increased their yield by approximately 140 bushels of corn per acre while reducing agriculture's land footprint by 9% nationwide.[14] Indeed, leveraging existing agricultural land, regenerative agriculture practices, and clean energy to produce both feed and fuel from the same crop while sequestering carbon throughout the production process maximizes land use

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[11] This intent was restated in the slide deck presented by CARB at the Workshop, "California Low Carbon Fuel Standard Workshop, April 10, 2024," at slide number 51 (hereinafter "CARB Workshop Slide Deck").

[12] CARB Workshop Slide Deck, at slides 52-56.

[13] *See* Oladosu, Gbadebo & Kline, Keith & Langeveld, "Structural Break and Causal Analyses of U.S. Corn Use for Ethanol and Other Corn Market Variables," Agriculture. 11. 267. 10.3390/agriculture11030267 (2021) ("The casualty analysis finds that U.S. corn use for ethanol is not a driver of corn price and net corn exports.") *See also* Taheripour, Baumes & Tyner, "Economic Impacts of the U.S. Renewable Fuel Standard: An Ex-Post Evaluation," Front. Energy Res., Sec. Sustainable Energy Systems Volume 10 (2022) ("The long-run effects of biofuel production and policy on food prices were negligible… biofuels' contribution to commodity price increases is really no different from fructose corn syrup, increased feed demands, or other market demands.")

[14] *See* USDA, "Crop Production Historical Track Records."

efficiency and carbon abatement. Making multiple products from one crop is an efficient, sustainable use of cropland and better for our environment.

CARB's 15-Day Notice proposal provides one clear sustainability criterion, stating that "biomass used in fuel pathways must only be sourced on land that was cleared or cultivated prior to January 1, 2008,"[15] a provision clearly related to the stated CARB goal that "biofuel production must not come at the expense of deforestation or food production." However, the other criteria set out in the 15-Day Notice remain unduly vague and untethered from the stated goal that biofuel production not come at the expense of deforestation or food production. CARB proposes at Section 95488.9(g)(1)(B) that "[b]iomass must be produced according to best environmental management practices that reduce GHG emissions or increase GHG sequestration," yet then leaves this requirement open-ended, asserting that this requirement includes, but is not limited to the following general criteria:

> *1. Maintain or enhance biodiversity habitat on agricultural or forested lands;*
>
> *2. Enhance soil fertility and avoid erosion or compaction;*
>
> *3. Apply fertilizers in a manner that minimizes runoff, and soil and water contamination;*
>
> *4. Reduce unsustainable water use, and minimize diffuse and localized pollution from chemical residues, fertilizers, soil erosion, or other sources of ground and surface water contamination.*[16]

While providing a bit more detail regarding expectations than the original sustainability certification proposal, CARB still defers the interpretation of how these general criteria might be satisfied to third-party schemes, and specifically those under the European Renewable Energy Directive (EU RED),[17] which was designed by European regulators and presumably based on European conditions and structures. CARB's failure to set out more specific requirements calls into question not only what problem CARB is trying to solve, but also how producers might comply. It also raises the question of whether CARB has the legal and regulatory authority to import into the LCFS undefined substantive provisions from outside schemes.

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[15] 15-Day Notice, Attachment A-1, Section 95488.9(g)(1)(A).

[16] 15-Day Notice, Attachment A-1, Section 95488.9(g)(1)(B).

[17] 15-Day Notice, Attachment A-1, Section 95488.9(g)(3)(C).

By way of example, the 15-Day Notice proposal further specifies that, in addition to certain of the general criteria noted in 95488.9(g)(1)(B), the third-party "certification system must consider environmental, social, and economic criteria." Yet, like the general criteria noted in 95488.9(g)(1)(B), this "environmental, social, and economic criteria" provision could be interpreted in a variety of ways. It is unclear from the proposed language which specific environmental, social, and economic criteria would be deemed essential for the CA-LCFS program and how those criteria might align with program goals. Further, CARB's failure to establish clear criteria calls into question why the current analytical, science-based methodologies used by CARB are assumed to be insufficient to provide the necessary controls on crop-based (and forestry) feedstocks to ensure environmental integrity. Moreover, given that CARB only detailed potential concerns about oil seed crops during the April 10 Workshop, there does not appear to be a basis for the broad application of the proposed sustainability certification requirements to all low-carbon fuels that use any form of crop-based feedstock.

In addition, it is unclear why crop and forestry-based fuels are being singled out for meeting social and economic criteria, which have implications for any fuel pathway participating in the program. These additional criteria have the potential to add substantial administrative burden to both farmers and fuel producers, potentially creating barriers to LCFS participation, and, as such, should be carefully considered in the context of what the program hopes to achieve by applying these criteria.

During the April 10 Workshop, CARB staff reiterated that its remit from the Board at the September 28, 2023, informal Board meeting regarding crop-based fuels was to "investigate guardrails."[18] It does not appear that CARB staff has done so, instead, as noted, CARB simply defers to third-party sustainability certification schemes without determining what "guardrails" might be required to meet the state's objectives and bypasses the public stakeholder process in the development of standards. Although the proposed LCFS regulatory revisions do not cite specific third-party schemes, during the April 10 Workshop, CARB staff referred to the Roundtable on Sustainable Biomaterials (RSB) and the International Sustainability and Carbon Certification (ISCC) initiative as the types of certification systems it believed would be applicable.

While Gevo is a member of and works with both RSB and ISCC, in our experience, despite being well-intentioned regarding stakeholder input from their members, these entities have not actively included farmers in the development of standards and, as European certification bodies, do not have first-hand experience with U.S. agriculture. Also, both of these entities have multiple certification standards, yet CARB has not provided sufficient detail to suggest which standards might be applied.

[18] CARB Workshop Slide Deck, at slide 51.

In light of the above, we implore CARB to remove the sustainability certification requirement from the current rulemaking and continue to mature the development of specific program requirements with multi-stakeholder input and workshop feedback to align any requirements CARB might impose with specific LCFS goals and make the provisions practicable. Critically, this stakeholder input must include farmers and others who work in agriculture. Farmers are often omitted from the development of program standards, despite being the most critical actors in implementation of those standards.

By focusing in on what the State of California seeks to achieve through additional sustainability criteria, and delineating those criteria with appropriate inputs, CARB can ensure program requirements are fit for purpose, clear, transparent, applied fairly across feedstocks and fuel production processes, properly credit GHG emissions reductions from agricultural feedstocks, and align with LCFS-specific program goals. Such a process need not be open-ended, as CARB could set up a process with a specified time frame (e.g., six months) as it has in other instances in which program requirements needed to be refined.

B. The Proposed Regulatory Provisions Have Apparent Errors and Conflicts

In reviewing the regulatory text proposed in the 15-Day Notice, we identified a number of apparent errors and conflicting provisions, further calling into question whether the sustainability proposal is fit for purpose. We identify the problematic provisions here and, again, urge CARB to revisit and refine its sustainability certification proposal.

- Section 95488.9(g)(1) asserts that "biomass used in fuel pathways is subject to the sustainability criteria listed in subsections 95488.9(g)(1)(A) through (C)." However, there is no subsection (C) under (g)(1). We note that missing (or otherwise unintended) subsection 95488.9(g)(1)(C) is referenced again under the 2031 Approved Certification Systems.

- The 2026 provisions in Section 95488.9(g)(2)(C) require field shapefiles/coordinates and attestations that the information is accurate. For existing pathways, the provision states the fuel producer must "maintain" the associated records, whereas for new pathways, the provision states the fuel producer must "maintain" the records and "submit" them to CARB. While that distinction seems reasonable, we note that the proposed regulatory text has instructions not only for fuel producers with new pathways to submit the records to CARB but also has instructions for those producers with existing pathways to submit the records, a seeming contradiction with the requirement that those with existing pathways simply "maintain" the records.

- As noted in the 15-Day Notice of Availability document, CARB intends the 2028 sustainability certification to ensure only that "feedstocks are not sourced on lands converted after 2008," with certification to any other sustainability criteria being optional.[19] This intent is carried through in the initial regulatory text at Sections 95488.9(g)(3)(A)&(B), which state that "pathways utilizing biomass under section 95488.9(g)(1) must []"[20] at least meet the sustainability requirements for biomass under section 95488.9(g)(1)(A)" (i.e., the 2008 land conversion provision). However, the subsections numbered (1) under 95488.9(g)(3)(A)&(B) contradict the stated intent to only require certification of the 2008 land conversion provision, by stating that the "chain-of-custody evidence for sustainable biomass must meet requirements of section 95488.8(g)(1)(B)1. through 3.," which are three of the separate environmental management practices.[21] We believe the inclusion of the additional sustainability criteria here is an error, as including them would contradict the stated intent and also would make the 2028 requirements the same as the 2031 requirements.

C. Emissions Reductions from Climate-Smart Agriculture Practices Should Be Credited

CARB proposes at Section 95488.9(g) that "[b]iomass must be produced according to best environmental management practices that reduce GHG emissions or increase GHG sequestration," and yet, while the drive for lower CI fuels already incentivizes use of lower CI feedstocks, CARB does not provide crediting within the LCFS for the climate-smart agriculture processes that are "best."

Climate-smart agriculture is an important lever for carbon abatement. Accordingly, in establishing specific sustainability criteria for crop-based feedstocks, CARB should also allow for climate-smart agriculture practices to be credited under the LCFS. Implementation of these feedstock production practices requires transition from usual practice and significant additional effort from farmers. Critically, as recognized by the U.S. Department of Agriculture (USDA), the National Academy of Sciences, the IPCC,

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[19] CARB, Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information Proposed Low Carbon Fuel Standard Amendments, at 13.

[20] The actual regulatory text that has been proposed repeats the word "must," so it reads "pathways utilizing biomass under section 95488.9(g)(1) must must at least meet the sustainability requirements for biomass under section 95488.9(g)(1)(A)."

[21] *See* 15-Day Notice, Attachment A-1, Sections 95488.9(g)(3)(A)(1) and 95488.9(g)(3)(B)(1).

and others, these practices can bring significant GHG emissions reductions.[22] Indeed, although CARB has not spelled out in detail what it might expect for the "best practices" it calls for under Section 95488.9(g)(1)(B) with respect to soil and fertilizer, various soil and fertilizer best practices can bring CI reductions, and most sustainability certifications would include a GHG analysis of the feedstock in addition to certification of sustainable practices. Yet, while proposing to require sustainability certifications that would cover such practices, CARB offers no emissions reduction credits to cover the additional cost and effort these requirements would impose on the farmer or the fuel producer.

As noted, CARB should revisit its sustainability certification proposal and include within it crediting for emissions reductions associated with climate-smart feedstock production practices. To expedite such crediting, CARB could leverage recent efforts at the federal level by USDA (and others) to include emissions crediting for agricultural practices under the Section 45Z tax credit. While still in development, the work to develop criteria for crediting emissions reductions from climate-smart agriculture practices under Section 45Z is being informed by a public stakeholder process that includes input from those with expertise in U.S. agriculture.

As noted, Gevo plans to source sustainably grown, low-CI field corn from the Lake Preston, South Dakota area and use Verity Tracking to measure and verify carbon intensity and all farm activities to the field level. The Gevo Growers' Program is currently enrolling farmers under our $30 million USDA Climate-Smart Commodities grant, which allows us to pay farmers more for implementing climate-smart agriculture practices such as cover crops, reduced tillage, organic fertilizers, and nutrient management. Simply put, such climate-smart agricultural practices are critical to producing sustainable feedstocks and lowering the CI of fuels. In addition to sequestering carbon in soil, these production practices provide significant additional ecosystem benefits such as soil health, water quality improvement, water use efficiency, more resilient crops, and long-term land fertility. These practices are a significant component of Gevo's approach to producing sustainable SAF and other low-carbon

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[22] *See* J. Rosenfeld, J. Lewandrowski, T. Hendrickson, K. Jaglo, K. Moffroid, and D. Pape, 2018. A Life-Cycle Analysis of the Greenhouse Gas Emissions from Corn-Based Ethanol. Report prepared by ICF under USDA Contract No. AG-3142-D-17-0161. September 5, 2018. *See also* National Academies of Sciences, Engineering, and Medicine. 2019. Negative Emissions Technologies and Reliable Sequestration: A Research Agenda. Washington, DC: The National Academies Press. doi: https://doi.org/10.17226/25259. See also Nabuurs, G-J., R. Mrabet, A. Abu Hatab, M. Bustamante, H. Clark, P. Havlík, J. House, C. Mbow, K.N. Ninan, A. Popp, S. Roe, B. Sohngen, S. Towprayoon, 2022: Agriculture, Forestry and Other Land Uses (AFOLU). In IPCC, 2022: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.009.

fuels, and we urge CARB to support these practices by crediting the emissions reductions they provide under the LCFS.

VI. CARB's Proposal to Assign Land Use Values Other Than Those Published Is Arbitrary and Capricious (Section 95488.3(d))

In the 15-Day Notice, CARB proposed to authorize the Executive Director to adopt "more conservative" land use change (LUC) values than currently provided in the regulations upon a determination that a published value is not "conservatively representative of a particular region/feedstock/fuel combination."[23] While stating that any such decision would be based on "the best available empirical data, including but not limited to satellite-based remote sensing data for land cover monitoring, crop yields, and emission factors from the AEZ-EF model or carbon stock datasets," the proposed regulatory text does not set out clear criteria for the Executive Director to make a determination that a published value is not "conservatively representative" or what value might be more "conservative" or "representative." Such broad and undefined authorization would create tremendous regulatory uncertainty, while also calling into question CARB's assignment of LUC values in the first place.

We also note this approach confuses the concepts of indirect land use change (iLUC) with direct land use change (dLUC). Economic models such as GTAP-BIO simulate causal relationships between sectors of the economy and cannot be replicated by empirical data such as satellite imagery. Models like GTAP-BIO simulate both land use change estimated to occur directly in cultivation of biofuel feedstock, as well as land use change estimated to occur in non-biofuel sectors in reaction to changes in biofuel production. While satellite data can indicate that land use change has occurred, it cannot provide evidence of <u>why</u> it occurred, and so cannot capture estimated economic ripple effects. Hence, it is not clear how empirical data could be used to arrive at a conceptually comparable value to the already modeled iLUC values and, if implemented, CARB's proposal would inappropriately create two different standards for LUC calculations for different feedstocks.

Accordingly, for the reasons cited above, the proposal as it stands is arbitrary and capricious and should be withdrawn.

[23] 15-Day Notice, Attachment A-1, Section 95488.3(d).

VII. Conclusion

Thank you for the opportunity to comment on the 15-Day Notice of additional changes to the Low Carbon Fuel Standard amendments proposal. Please let us know if you have any questions regarding our comments. We look forward to continuing to participate in this program with our RNG and as Gevo begins commercial scale production of SAF and other biofuels.

Respectfully,

Kent Hartwig
Director of State Government Affairs
Gevo, Inc.

Nancy N. Young
Chief Sustainability Officer
Gevo, Inc.