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December 21, 2022

Matthew Botill  
California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

**RE: Comments on November 9, 2022, Low Carbon Fuel Standard Workshop**

Dear Mr. Botill:

True North Renewable Energy (TNRE) appreciates your time in hosting and the opportunity to comment on the November 9, 2022 Low Carbon Fuel Standard (LCFS) public workshop on options for increasing the stringency of the carbon intensity (CI) targets for 2030 and beyond and related scenario modeling. TNRE would like to express our continued support for the LCFS as a transformational, technology-neutral and performance-based program that has helped to rapidly usher in a wide array of low carbon fuels for California's transportation market. Our primary comments and recommendations include the following, with additional details provided below:

- CARB should adopt final CI reduction targets that align with the goals and outcomes included in the Final Scoping Plan. We support ongoing scenario analysis incorporating inputs and outputs from the Final Scoping Plan modeling, which we anticipate may suggest even greater CI reduction targets than identified in Alternative C.
- The LCFS is one of the most powerful tools to develop biomethane projects. Now is not the time to restrict the market by limiting avoided methane crediting and we oppose the proposal in Alternatives A and B to do so, especially for organics diversion projects.
- Instead, CARB should leverage the LCFS to more quickly develop anaerobic digestion infrastructure needed to meet SB 1383 requirements by updating the landfill capture rate assumptions and global warming potential values for methane in the GREET model to account for the latest scientific understanding.
- We encourage CARB to update the CATS model to include biomethane from organics diversion, carbon capture and sequestration as an option on all fuel pathways, including biomethane pathways, and all available federal incentives.

**About TNRE**

TNRE develops, builds, and operates state-of-the-art organics-to-renewable energy facilities, including large scale, regional high-solids anaerobic digestion infrastructure. These facilities reuse and repurpose organic resources diverted from landfills to create beneficial, sustainable products, including biomethane and soil-amending compost. TNRE is focused on partnering with communities in California to meet local and state requirements for diverting organic waste from landfills and cutting short-lived climate pollutant (SLCP) emissions, while generating compost and renewable natural gas to help decarbonize other sectors of the economy and meet California's climate goals.

## **CARB should adopt strong new LCFS targets, at least as stringent as Alternative C and in-line with the Final Scoping Plan**

As you undoubtedly know, the LCFS is one of the most powerful climate policies in California. In particular, it provides a strong and targeted market signal for hard-to-abate sectors, which enables low carbon solutions to come to market that would not necessarily emerge otherwise through the Cap-and-Trade Program or the State's other climate policies. Indeed, recognition that Cap-and-Trade or other policies likely would be insufficient to foster investment in low carbon transportation fuels is what led to the creation of the LCFS in the first place.

Now it is time to amend the CI reduction targets in the program to align with the Final Scoping Plan. We appreciate CARB introducing new, stronger 2030 CI targets in Alternative C and longer-term targets through 2045. We also appreciate that the workshop was held before the Final Scoping Plan was released, and accordingly includes assumptions based on the Draft Scoping Plan. The Final Scoping Plan, however, includes a wide array of new targets and activities that will affect the LCFS market and should be accounted for in LCFS-related modeling to ensure new CI targets align with the State's carbon neutrality objectives.

We encourage CARB to continue evaluating alternative scenarios, including those that are designed to achieve the outcomes identified in the Final Scoping Plan in terms of petroleum reduction, biomethane deployment, carbon dioxide removal and other objectives. We anticipate that such an analysis might suggest targets even more stringent than those identified in Alternative C to be appropriate, and we encourage CARB to fully evaluate and consider those.

## **CARB should not restrict avoided biomethane crediting, especially for organics diversion pathways**

We were alarmed the proposal included in Alternatives A and B to eliminate crediting for avoided methane emissions. Accounting for avoided methane emissions accurately reflects a pathway's carbon intensity compared to the no project alternative, and has proven incredibly effective at rapidly developing infrastructure to reduce methane emissions and projects supplying biomethane in the State, especially for dairies. If CARB were to eliminate crediting for avoided methane, it would send a very negative signal to the biomethane market, restrict project development, and invariably lead to increased SLCP methane emissions and lower availability of biomethane.

This is especially critical for organics diversion projects, which are still struggling to be developed in California, and have a hard time competing with landfilling or composting alternatives. We strongly urge CARB to maintain crediting for avoided methane emissions under the LCFS, especially for organics diversion pathways. We support the assumptions in this regard included in Alternative C.

## **Instead, CARB should leverage the LCFS to further enable organics diversion pathways**

In fact, we hope CARB will consider similarly leveraging the proven success of avoided methane emissions in accounting for dairy digester projects and update avoided methane accounting for organics diversion projects to enable similar outcomes for those needed projects. We hope CARB will update the GREET model during this set of amendments to reflect the latest understanding of the science related to landfill methane emissions and global warming potential of methane. These changes would more accurately

reflect the true environmental benefits of landfill-diverted organics projects, and also serve to help them get developed quickly, and on timelines needed to achieve the State’s organics diversion goals and SB 1383 regulatory requirements.

We appreciate CARB recently hosting a workshop on landfill methane emissions, highlighting the latest science, which continually shows landfill methane emissions to be higher than estimated in the State’s greenhouse gas inventory and other programs, including the LCFS. The last two global scientific consensus Assessment Reports from the Intergovernmental Panel on Climate Change both highlight that the global warming impact of methane is higher than currently represented in California’s programs. For example, while the LCFS and other programs continue to use the outdated 100-year GWP value of 25, the U.S. EPA acknowledges the latest science pegs the 100-year GWP at 27-30.<sup>1</sup>

We understand the inventory and other programs may have separate processes and timelines that are appropriate to consider before updating accounting there. However, the LCFS accounting should reflect the latest science, and we encourage you to incorporate updated landfill methane capture assumptions and methane GWP values in the GREET model in the next set of LCFS amendments, regardless of the approach or timing CARB takes for other programs. The success of LCFS is based on the stringent lifecycle greenhouse gas emissions accounting – down to the hundredths of a g/MJ – and CARB should endeavor to always reflect the latest science in every iteration of the GREET model and set of LCFS amendments. Making this change now will also have important impacts on developing the anaerobic digestion infrastructure needed over the next three years to achieve 75% organics diversion by 2025.

**CARB should update the CATS model to include biomethane from organics diversion, CCS on all pathways, and all relevant federal incentive programs**

Finally, we note that there appears to be an ongoing bias towards composting as an organics diversion strategy, despite the greater benefits offered by anaerobic digestion, and important and growing role that biomethane will play in meeting the State’s climate targets. As described in comments we submitted related to the Draft Scoping Plan,<sup>2</sup> TNRE has completed a comparison of composting and anaerobic digestion pathways using CARB’s greenhouse gas quantification calculator for the State’s organics programs. That calculator shows that anaerobic digestion technology like TNRE’s delivers significantly greater criteria and greenhouse gas emissions benefits than traditional or advanced composting – up to twice the greenhouse gas reductions and about 4-12 times more NOx reductions.

Nonetheless, the CATS modeling does not include anaerobic digestion from diverted organic waste as a fuel production pathway. These projects are difficult to develop and require ongoing support and attention from the state to develop in the quantity and timelines needed. It’s imperative that CARB and other State agencies increasingly focus on supporting anaerobic digestion from diverted organics, if we are to achieve our organics diversion and SLCP goals and deliver the volumes of biomethane from the resource expected in the Final Scoping Plan, as reflected in the FAQ document released as part of the workshop materials.

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<sup>1</sup> <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>

<sup>2</sup> <https://www.arb.ca.gov/lists/com-attach/2454-scopingplan2022-BXFdNVEiU2UAWVQn.pdf>

We ask that you add organics diversion pathways for CNG, electricity and hydrogen into the CATS model, and we would be happy to work with you on appropriate modeling assumptions to include. It also appears that the model does not include CCS on biomethane pathways, despite the fact that anaerobic digestion produces a fairly pure stream of CO<sub>2</sub> that may be relatively affordable to capture – as reflected in the technical documentation for ethanol – and could deliver significant additional greenhouse gas benefits under the program. We urge you to enable CCS for all relevant pathways in the model, and also ensure available federal incentives for biomethane and all other pathways are accounted for.

## Conclusion

Thank you again for the opportunity to comment on this important workshop. We hope you will continue evaluating appropriate CI reduction targets based on the Final Scoping Plan, and continue to leverage the LCFS as a critical tool to achieve SLCP methane reductions and organics diversion goals. As noted in our comments on a previous workshop, California has enough existing organic waste resources to achieve greater than a 90% reduction in CI, *just from in-state, waste-based pathways*.<sup>3</sup> Accordingly, we hope CARB will fully explore the opportunity the LCFS can play in advancing the State's carbon neutrality and other climate goals, and enable it to do so.

Sincerely,



Gary Aguinaga  
President  
True North Renewable Energy, LLC

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<sup>3</sup> <https://www.arb.ca.gov/lists/com-attach/16-lcfs-wkshp-jul22-ws-AXUHb1EiVmAGX1Q4.pdf>