

April 11, 2024

California Air Resources Board
1001 I Street
Sacramento, CA 95814

Dear Members of the Board:

The Methanol Institute appreciates the opportunity to offer these written comments on the California Air Resources Board (CARB) Proposed Amendments to the Low Carbon Fuel Standard (LCFS) regulations. I was one of the on-line Zoom attendees yesterday that did not get an opportunity to provide oral comments. During a discussion during the technical workshop in response to a comment regarding the use of methanol as a fuel for harbor craft, CARB staff noted that more data was needed on the use of methanol as a marine fuel, and we would be happy to engage with staff on this point.

The Methanol Institute is a global trade association representing the world's leading methanol producers, distributors, technology companies and consumers. The Methanol Institute's mission is to promote emerging methanol markets and drive the expansion of low carbon and net carbon neutral methanol supply. The use of methanol as a marine transportation fuel aligns with CARB's mission in the LCFS program to encourage private sector innovation to develop a diverse supply of low-carbon transportation fuels in California.

The Methanol Institute believes the large-scale integration of low-carbon and net carbon-neutral fuels, such as renewable methanol, at an accelerated rate in marine applications, will be fundamental to achieving international targets for GHG reductions in the marine sector.¹ Under the current LCFS regulations, renewable methanol is ineligible for credit generation because it is not identified as an opt-in fuel. Therefore, the Methanol Institute supports amending Section 95482 of the LCFS regulations to ensure that low-carbon intensity methanol is made eligible for LCFS crediting as an opt-in fuel when sold for use in marine vessels. Specific proposed regulatory text is attached in Appendix A below.

CARB has determined that marine transportation is a hard-to-decarbonize sector² that severely impacts local air quality in California's port-adjacent communities.³ Expanding the use of renewable methanol presents an opportunity to both reduce carbon emissions and improve local air quality for traditional pollutants. Compared to conventional fuels such as diesel, renewable methanol cuts carbon dioxide emissions by up to 95%, reduces nitrogen oxide emissions by up

¹ See Methanol Institute, "Components in Measuring GHG Intensity of Marine Fuels," available at <https://www.methanol.org/marine/>.

² See California Air Resources Board, "2022 Scoping Plan," 190, available at <https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents>.

³ See California Air Resources Board, "Interim Evaluation Report – Control Measure For Ocean-Going Vessels At Berth," available at <https://ww2.arb.ca.gov/news/carb-passes-amendments-commercial-harbor-craft-regulation>.



to 80%, and completely eliminates sulfur oxide and particulate matter emissions.⁴ Amending the LCFS regulations to allow low-carbon and net carbon-neutral methanol to generate credits when used in marine vessels will incentivize the use of renewable methanol over traditional marine fuels, leading to an overall reduction in emissions in the marine transportation sector in alignment with CARB's goals to improve local air quality and address global climate change.

In recent years, demand for methanol as a marine transportation fuel has steadily grown as major shipping companies are building out ship fleets capable of running on methanol. Maersk has now launched their third container ship operating on low-carbon and net carbon-neutral methanol. According to Clarksons (<https://www.clarksons.com/>), there are now more than 250 newbuild methanol vessels on order and set to enter service over the next four years. There have also been more than 100 orders for the retrofit of existing vessels to operate on methanol fuels. Lloyd's Register has estimated that the fleet of methanol-fueled vessels could exceed 1,200 ships by 2030⁵.

Since each of the larger 16,000-24,000 TEU containerships will consume as much as 40,000 metric tons of methanol per year the demand for low carbon intensity methanol will reach tens of millions of tons in the coming years. Since many of these vessels will call on ports in California, it will be critically important for the State to foster the production and bunkering of renewable methanol.

The Methanol Institute strongly urges CARB to include in the final LCFS amendments the ability to generate credits from the use of low-CI methanol as an opt-in fuel for marine vessels under Section 95482. The Methanol Institute thanks CARB for its time and dedication to the LCFS amendment process and looks forward to continued engagement with CARB staff throughout this process. As noted above, we would be happy to help you address data needs around the use of methanol as a marine fuel.

Respectfully,



Gregory A. Dolan
Chief Executive Officer

⁴ See Methanol Institute, "Renewable Methanol," available at <https://www.methanol.org/renewable/>.

⁵ See: <https://www.lr.org/en/knowledge/press-room/press-listing/press-release/renewable-production-needed-to-make-methanol-a-viable-fuel-for-the-maritime-energy-transition/>



Appendix A

17 C.C.R. § 95482 - Fuels Subject to Regulation

(b) Opt-In Fuels. Each of the following alternative fuels ("opt-in fuels") is presumed to have a full fuel cycle, carbon intensity that meets the compliance schedules set forth in sections 95484(b) through (d) through December 31, 2030. A fuel provider for an alternative fuel listed below may generate LCFS credits for that fuel only by electing to opt into the LCFS as an opt-in fuel reporting entity pursuant to section 95483.1 and meeting the requirements of this regulation:

- (1) Electricity;
- (2) Bio-CNG;
- (3) Bio-LNG;
- (4) Bio-L-CNG;
- (5) Alternative Jet Fuel; ~~and~~
- (6) Renewable Propane; ~~and~~
- (7) Renewable Methanol.

17 C.C.R. § 95481 - Definitions and Acronyms

(a) *Definitions*. For the purposes of sections 95480 through 95503, the definitions in Health and Safety Code sections 39010 through 39060 shall apply, except as otherwise specified in this section or sections 95482 through 95503:

(132) "Renewable Methanol" means methanol produced from renewable feedstocks including gasification of biomass (ie., municipal solid waste, forestry residue, black liquor, etc.) or bio-methane/bio-gas (ie., from anaerobic digestion of landfill gas, municipal solid waste, animal manure, etc.) collectively referred to as bio-methanol, or from combining renewable hydrogen (ie, from electrolysis of water using renewable electricity) and carbon dioxide (ie., from biogenic sources, direct air capture, or industrial flu gas CO2 capture and utilization (CCU))

