



AEMETIS

December 21, 2022

California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: CARB *Low Carbon Fuel Standard (LCFS): Concepts and Tools for Compliance Target Modeling*, held November 9, 2022.

Dear Board Members,

Aemetis, Inc. is one of California's leading renewable fuels companies, producing renewable natural gas and renewable fuels focused on below-zero carbon intensity products. Aemetis has also been the largest in-state producer of renewable ethanol since 2011. As such, Aemetis continues to make significant contributions to California's Low Carbon Fuel Standard (LCFS) program as both a producer of LCFS credits as well as reducing harmful local air pollution by capturing methane and by significantly decreasing or eliminating the use of carbon-based fuels.

In 2019, the company formed a subsidiary, Aemetis Biogas LLC, to develop and operate dairy methane digesters to produce below-zero carbon intensity (CI) Renewable Natural Gas (RNG) for transportation fuel. Aemetis has formed similar subsidiaries to produce Renewable Diesel (RD) and Sustainable Aviation Fuel (SAF), as well as explore Carbon Capture and Sequestration (CCS) opportunities. During the next sixty months, the planned 60+ dairies in the estimated \$380 million Aemetis biogas project are expected to capture approximately 1.6 million MMBtu of dairy methane per year and reduce greenhouse gas emissions and other harmful air pollutants in or near a number of disadvantaged California communities.

By aggressively responding to GHG reduction goals and policies set forth by the State Assembly, multiple Governors, CARB, CEC and other state and local agencies, Aemetis and other private sector companies are doing exactly what the State of California envisioned when enacting said policies – investing billions of dollars of capital to bring about the acceleration of transportation de-carbonization and significantly improve California air quality.

In the November 9th workshop, *Concepts and Tools for Compliance*, CARB staff suggested some dramatic and non-scientific based changes that Aemetis found particularly concerning. We were surprised to see potential modeling scenarios implying significant shifts in the LCFS's crediting framework for RNG. On multiple occasions over decades, California has recognized the

devastating climate impacts of continued methane emissions and the severe adverse health impacts on underrepresented populations in disadvantaged communities.

Better quantifying methane benefits in the LCFS should be a key focus for CARB, rather than considering arbitrary dates for sunseting such avoided methane crediting. By reducing or eliminating avoided methane crediting, it is almost certain that new projects would immediately cease, and existing projects would become stranded assets; The expected return on capital would be severely curtailed, eliminating necessary ongoing investment or re-investment in aging facilities. The net result would likely be digesters being removed or disabled and re-introducing unnecessary methane emissions into the atmosphere.

The GREET model excludes the value of avoided methane emissions required by law to ensure that carbon reductions credited under the LCFS are in addition to legally required decreases. To phase out credits for avoided methane emissions, in general, would exclude carbon reductions from the lifecycle analysis that are not currently required by law. This phase-out of credits would impair the fuels that are providing the most extensive carbon reductions and the only means of meeting the near-term requirements of SB 1383 to reduce short-lived climate pollutants (SLCP). By the Air Board's analysis, fuels from diverted organic waste and dairies also provide the most cost-effective of all the state's investments in carbon reductions.¹

Phasing out credit for avoided methane emissions will also slow or reverse the state's efforts to reduce SLCP emissions as required by SB 1383. It would likely halt or reverse the state's progress in reducing dairy methane, which is proving to be one of the state's most successful carbon reduction programs. Moreover, developers are making decisions about new investments, maintenance, and upgrades today. Lacking a higher LCFS price and environmentally based incentives, programs across all types of fuels – especially dairy RNG – will no longer be attractive to the private investment required to make the LCFS successful in the long run.

As CARB officials readily admit, the State of California needs private funds to invest in the capital projects necessary to meet the ambitious goals of SB 1383. Investors will look elsewhere without a consistent and predictable program to attract funding, and a reasonable return. While it is fair to compensate dairy owners for using their land and manure, the biogas developer pays the overall cost of installing a digester, permitting, pipeline installation, and gas cleanup equipment. Each dairy digester and related infrastructure (pipeline, gas cleanup, interconnection, etc.) costs millions of dollars. As such, the majority of revenues generated by the digester pay off developer debt associated with the project, which is often a 20-year period under the USDA Renewable Energy for America Program (REAP).

Canceling LCFS credit revenue while USDA or other private debt remains unpaid will not allow future funding of biogas digesters by lenders. This financial reality is fundamental and should be

¹ California Air Resources Board, *California Climate Investments 2022 Mid-Year Data Update*, September 2022, showing that investments in dairy digesters and diverted organic waste cut carbon emissions by \$9 and \$10 per ton, respectively. ARB's 2021 Annual Report on Climate Investments also showed that investments in organic waste to energy were the most cost-effective of all the state's climate investments.

an underpinning of any CARB decision regarding the future direction of the LCFS and any proposed changes to the program.

Suggesting dramatic policy changes without considering the unintended consequences would be a grave error. In quick succession, arbitrary or non-science-based changes to the LCFS could lead to the failure of new or established projects due to "changing the rules in the middle of the game" regarding investments in biogas digesters.

SB 1383 does not regulate methane emissions from dairies before 2024 and establishes several pre-conditions to regulating dairy methane emissions that are unlikely to be met. That means that avoided methane emissions from dairies are additional and should be credited under the LCFS. Phasing out avoided methane credits is not justified by science or law.

Phasing out avoided methane credits also contradicts the requirement of SB 1383 to develop a mechanism to “reduce the economic uncertainty associated with the value of environmental credits, including credits pursuant to the Low-Carbon Fuel Standard regulations.”² Removing credits for avoided methane opposes what SB 1383 sought to achieve: long-term financial certainty around the value of LCFS credits to reduce SLCP and other carbon emissions.

The lowest carbon fuels, which include biomethane, biogas, hydrogen, and electricity generated from organic waste, are the only fuels that reduce Short-Lived Climate Pollutants, which should be the state’s highest climate priority since it is the primary way to provide a positive environmental change in the near term. However, setting an artificial end date for avoided methane emissions, whether or not they are required by law – and doing so only for biomethane - does not make sense and contradicts the plain language of SB 1383. This could open the door to changing requirements for all LCFS based fuels, which could lead to an overall weakening of the program.

Aemetis agrees that changes are needed to the LCFS to quickly drive down carbon intensity and to align the LCFS carbon reduction targets with SB 32 and the state’s other climate and clean energy programs. Doing so will require increasing the carbon reduction target and increasing and stabilizing credit prices to give developers and dairy owners more incentives and certainty.

We strongly support CARB instituting a market mechanism to align LCFS pricing more closely with the carbon reductions achieved by producers and the long-term investments necessary to ensure the program's continued success. We have previously submitted comments regarding instituting LCFS price management within a price window (a floor and a ceiling). We reiterate the need for such a mechanism and encourage CARB staff to initiate a discussion with stakeholders to develop fair and predictable guardrails to manage the highs and lows of LCFS pricing to ensure investment in critical LCFS related projects.

The European Renewable Gas Registry (ERGaR) was started by and continues to be composed of long-established registries and stakeholders of the biomethane and renewable gas industry. A growing imbalance between biomethane production and consumption in several countries necessitated cross-border transfers. Recent improvements in the Renewable Fuel Standard will

² Health and Safety Code section 39730.6(d)(1)(B).

likely allow for similar accounting. In fact, the U.S. Renewable Fuel Standard,³ the Canadian Clean Fuel Standard, the Oregon Clean Fuel Standard, the Washington Clean Fuel Standard all use some form of book and claim for RNG projects as well as for electricity and hydrogen. Gas utility procurement programs for RNG also primarily use similar concepts. CARB should maintain a harmonized policy that supports global norms.

Community members support the projects we are developing, and many have expressed their appreciation for reducing air pollution and odors by building digesters. Local elected officials have been extremely supportive of our projects through letters to permitting and grant agencies. To date, we have had little or no negative response during public comment periods associated with our CEQA or other permits. The public health benefits of reducing methane and other dangerous air pollutants are well established, and we have no evidence that residents of impacted communities disapprove of our activities.

We have labor agreements that have generated many jobs that directly benefit local building trade laborers, several of whom are from underrepresented populations and live in disadvantaged communities. We established a scholarship program that awards monetary support to local high school graduates pursuing STEM careers – students living in disadvantaged communities. We work directly with a local job training organization (Volt Institute), which assists local citizens in developing job skills directly related to our industry. Through deliberate action, hiring, consultation and outreach, and significant investment, Aemetis Biogas continues to demonstrate a purposeful and respectful approach to the communities that host our dairy digester projects. It is also worth pointing out that two-thirds of the Aemetis Biogas development team, including senior management, are women or minorities and live in the same communities served by our projects.

We applaud the voluminous detailed work conducted by CARB staff regarding dairy RNG LCFS pathways that are scientifically based and will continue to help California achieve its aggressive GHG reduction objectives. We are thankful for the thousands of CARB staff hours that have been dedicated to ensuring that scientific evidence aligns with carbon reduction policies advanced by California citizens, elected officials, health and environmental professionals, and academia. The facts are clear: dairy digesters and dairy based RNG provide significant environmental benefits, most notably the reduction of methane gas, CO₂, and other air contaminants.

In summary, Aemetis encourages CARB to:

- **Insure investor confidence in the LCFS.** This confidence can easily be reversed by "stroke of the pen" actions and once lost, is not easily recovered. We strongly encourage CARB to avoid surprise proposals and unnecessary actions in the forthcoming rulemaking. Stakeholders stand ready to work constructively with CARB staff to ensure that the LCFS continues to be the model for other states and other countries. Maintaining an honest and respectful dialogue with interested parties at all stages of the process will result in a positive outcome for our citizens and the environment.

³ <https://www.biocycle.net/biogas-rng-projects/>

- **Increase the carbon intensity reduction** required by 2030 to 40 percent. This will begin to align the LCFS targets, the RPS, and other requirements of SB 32.
- **Continue to include the value of avoided methane emissions** except where the methane avoidance is already required by law. In the GREET model and lifecycle analyses in general, avoided emissions are included when they are not otherwise required by law or when there are higher carbon options to comply with a law or regulation. Those are essential qualifications to ensure that participating fuels – and their associated carbon reductions – are providing additionality.
- **Initiate a market pricing mechanism** to ensure continued predictability and encourage private investment in LCFS-related projects. CARB has set an LCFS credit price ceiling but needs a price floor. If the target price floor for LCFS credits is 10% too low during a 6-month period, then automatically increase the number of LCFS credits needed in the next 6 months by 10%. This automatic mechanism would be easy to understand and implement--only requiring a price floor to be set.
- **Initiate an in-state producer credit** similar to the AB 118 Biofuels Producer Incentive Program or other California preferred programs that help offset the additional cost and delay required for California project development. Out of state producers should be incentivized to participate in methane capture programs such as the LCFS. In-state California producers should be allowed consideration for the extra cost to build and maintain projects that benefit local air quality and in-state economic activity. Many of these hurdles include costly and timely obstacles including, but not limited to, higher construction and material costs, higher energy costs, higher labor costs, and higher permitting costs (including CEQA).
- **Encourage CARB to increase staffing** for LCFS Pathway Application review and verification. The volume of new Pathway applications has significantly increased, and it is not uncommon for the application approval process to take up to one year. This backlog creates a significant delay for developers to generate revenue used to repay invested capital. Finding and hiring experienced staff for any organization is challenging. This can be especially true for specialized positions. While by no means a reflection of the professional staff members at CARB who are carrying a significant workload, hiring additional skilled and experienced resources should be a priority.

Establishing a collaborative and respectful dialogue between state regulators and the industries they regulate is essential for effective public policy outcomes. We thank you for your dedication and consideration of our comments and suggestions and appreciate the opportunity to add our voice to this important process. We would be happy to share these ideas at greater length in person. Please do not hesitate to contact us if you have any questions or require additional information.

Sincerely,



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