CleanFuture, Inc.
P.O. Box 23813
Portland, OR 97281-3813
office: +1 503 427-1968
e-mail: john@CleanFuture.us

September 29, 2021

Mr. Richard Corey
Executive Officer
California Air Resources Board
Attn: Mr. Anil Prabhu
P.O. Box 2815
Sacramento, CA 95812

Submitted by Email to Anil.Prabhu@arb.ca.gov

RE: Response to Public Comment on Application B0175 for Tier 2 Pathway: Low-CI Electricity

Dear Mr. Corey and Mr. Prabhu,

A comment was submitted during the public comment period for CleanFuture's Tier 2 Pathway for Low-CI Electricity sourced from biogas released from dairy manure with co-digested cheese wastewater for use as transportation fuel in electric vehicles in California. As authorized by §95488.7(d)(5)(A)(2), this letter provides a detailed written response to the Executive Officer explaining why no revisions to the pathway application are necessary.

Pursuant to §95488.7(d)(5)(A): "Only comments related to potential factual or methodological errors will require responses from the fuel pathway applicant." The comment letter raises multiple issues that do not relate to potential factual or methodological errors and these issues that do not require a response are not addressed. The text from the comment is quoted, with CleanFuture's responses to the various parts of the comment raised provided directly after the text.

Parts of the Comment and CleanFuture Responses

Subject: Comments in Opposition to Tier 2 Pathway Application No. B0175

Comment (A):

"Important factual information is omitted or redacted in the application, rendering meaningful stakeholder review of its claims impossible."

> **CleanFuture Response (A)**: The LCFS regulation at 17 CCR §95488.8(c) specifies the process for a fuel pathway applicant to follow in the designation of confidential business information ("CBI"). CleanFuture followed this process in the development and submittal of this pathway application. While CBI has been redacted from the application as authorized by California law, the application still contains information sufficient to

evaluate the underlying carbon intensity modeling. The Staff Summary provides an overview of the pathway and the facility. The Staff Summary also provides a description of the Fuel Type Pathways at page 2-3. At page 4, the Staff Summary states, "Staff has reviewed the provisional application and has replicated, using the Tier 2 modified version of the Simplified CI Calculator, the CI value calculated by the applicant. Cameron-Cole, LLC (H3-20-004) submitted a positive validation statement."

In addition to the summary and description provided by the Staff Summary, the documents entitled "Carbon Footprint of Electricity Generation from Dairy Digester Gas at Giacomini Dairy Description for Electricity from Biogas for Electric Vehicle Charging in California" and the "Modifications to Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure Applied to Generation of Electricity from Biomethane" and "Modifications to Tier 1 Simplified CI Calculator for Biomethane from Anaerobic Digestion of Dairy and Swine Manure for Co-digested Feedstocks Applied to Generation of Electricity from Biomethane" provide explicit detail regarding the precise modeling used to calculate the carbon intensity value.

Comment (B):

"The application violates the LCFS regulation by failing to employ a methodologically sound life cycle analysis that accounts for the GHG emissions that result from the applicant's production of manure methane."

CleanFuture Response (B): Aspects of this portion of the comment assert there were factual or methodological errors in the pathway application. The commenter expresses concerns whether all related GHG emissions, both direct and indirect, were evaluated. A complete life-cycle assessment report ("LCA Report") describing the Giacomini digester and associated electric generation was completed following the requirements of LCFS Regulation as identified in section 95488.7(a)(2). Contrary to the commenter's statement, the LCA Report assesses the GHG emissions associated with the manure in great detail by following sophisticated algorithms that account for quantity and type of cows, feed, manure handling and separation, retention times, ambient temperature, and other variables. These algorithms were drawn from the Compliance Offset Protocol Livestock Projects ("Protocol"), which has been in use since 2011 in partial fulfillment of the Global Warming Solutions Act of 2006 (AB32). CARB reviewed these algorithms and provided the project applicant with a state-approved computation tool ("CA-GREET 3.0" model) applying them to the case of LCFS electricity generated from cattle manure.

The life-cycle assessment described in the LCA Report is a comparative life-cycle assessment, meaning it reports differences between the fuel pathway (the Giacomini electricity generation project) and a counterfactual baseline that would have likely occurred without the fuel pathway. The LCA Report postulates a baseline of conventional manure management, namely collection of manure in an anaerobic lagoon. Calculations applied to the project date are taken from the Protocol, the CA-GREET 3.0 model, and guidance provided by CARB for a complete life cycle GHG assessment.

Comment (C):

"*CAFOs spur climate change and degrade air quality, degrade water quality, and harm human health and harm animals*."

CleanFuture Response (C): The Commenter's remarks suggesting that the Robert Giacomini Dairy is contributing to the degradation of environmental quality, air quality, human health, and well-being of animals are untrue, reckless and irresponsible. The Commenter has presented **ZERO** facts or instances about specific operations at the Robert Giacomini Dairy that support any of the claims made in their comment letter. Rather, as evidenced by the Commenter's submission of this verbatim comment letter for other posted dairy and swine pathways, the Commenter is instead inappropriately using the LCFS public comment process as an opportunity to repeatedly make the identical comment regardless of the underlying facts (and apparently without bothering to determine the underlying facts) in order to promote an anti-dairy/swine policy position.

The Commenter states that "CAFOs like this one… are not farms--they are industrial-scale agricultural facilities…" However, the Giacomini Dairy (Point Reyes Farmstead Cheese Operation) milks less than 500 cows, placing it among the smallest dairy producers in the state. This facility is a certified women-owned small business where three sister-owners and their team raise every animal on site from infancy to maturity. The animals have regular access to pasture grazing on grassy hills surrounding the dairy, where visitors are regularly welcomed for onsite cheese tasting. If commentor claims this dairy is "not a farm" then commentor is clearly opposed to the existence of all dairies, regardless of size, merit, location, animal welfare, or other practices which commentor claims are the basis for opposition.

In addition to sustainable farming practices, the project utilizes biogas for small scale power generation by capturing and destroying gases that would otherwise have been emitted to the atmosphere through historic manure management practices, and instead converts those gases into electricity conveyed to zero emission heavy-duty vehicles for freight and goods movement.

Electrification is one of the leading strategies for reducing greenhouse gas (GHG) emissions and decreasing criteria air pollutant emissions from transportation. Through the crediting of low carbon intensity electricity used to power heavy-duty electric vehicles, transport refrigeration units, ocean-going vessels at berth, and cargo handling equipment, the LCFS promotes increased electrification within the transportation sector. The alternative fuels and vehicles promoted under the LCFS have and will continue to result in net benefits for air quality statewide, as demonstrated in the air quality and health analyses conducted as part of the 2018 LCFS rulemaking.[1] CARB's emission analysis shows that, across the full fuel life cycle of dairy biogas to electricity pathways, there is

[1] CARB Report: Initial Statement of Reasons for the Proposed Regulatory Amendments to the Low CarbonFuel Standard, March 6, 2018. See Chapter V. Accessed September 28, 2021 at https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/isor.pdf

an overall net reduction in NOx and PM, relative to the use of diesel fuel.[2] The renewable electricity used as transportation fuel in zero emission electric vehicles thereby dramatically reducing or eliminating methane release to the atmosphere.

Comment (D):

"Granting the application would incentivize CAFOs to expand which would increase air pollution, accelerate climate change, further degrade water quality and quantity, and harm community health."

CleanFuture Response (D): Dairies manage their herd size based on demand for their dairy products, not biogas production. The Robert Giacomini Dairy has maintained a small population of milking cows since the farm's inception in 1959. With only 720 acres of farmland, the dairy owners have made conscious decisions to keep the herd size at or below 500 milking cows to maintain the environmental integrity and quality of natural resources of their farmland. In fact, sustainable farming practices have been and always will be a true priority for the Robert Giacomini Dairy and any insinuation that having an approved LCFS pathway will lead to herd expansion is untrue. In fact, the goal of the dairy has been keeping the herd size small, focusing on its artisanal cheesemaking business.

The installation and operation of the digester helps the dairy to reduce the environmental impact of its ongoing operations. The LCFS program further incentivizes the reduction of methane from the project's ongoing operations by rewarding project owners who install technologies to reduce any flaring, further separating out nutrients post-digestion, and promoting the reduction of energy use by the project.

The potential for local increases in criteria pollution associated with some fuel production processes and related activities was acknowledged and discussed as part of the Final Environmental Analysis for Amendments to the Low Carbon Fuel Standard in 2018.[3] That consideration also recognized the fact that increased availability of low carbon electricity provides an alternative to the use of diesel fuel thus resulting in lower diesel PM emissions throughout the state and particularly the valley where diesel trucks are one of the largest contributors to the diesel particulate matter. And, with the state's incentive and regulatory programs the opportunity to transition away from burning petroleum-based fuels, such as diesel, to non-combustion options (e.g., zero emission trucks) is unprecedented. Thus, pathways that support lower CI electricity are expected to facilitate the transition to zero emission transportation and therefore contribute to reductions in

[2] California Air Resources Board. Dairy Digester Emissions Matrix Presentation. May 2018. Accessed September 28, 2021 at https://ww2.arb.ca.gov/sites/default/files/2020-07/dairy-emissions-matrix-113018.pdf

[3] California Air Resources Board, Final Environmental Analysis for Amendments to the Low Carbon Fuel Standard and the Alternative Diesel Fuels Regulation, September 17, 2018. Accessed September 28, 2021 at https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/finalea.pdf?_ga=2.227622173.1639234547.1576769077-182891752.1541114262

NOx emissions as well as emissions of diesel particulate and other toxic pollutants. In approving the LCFS amendments, the Board found that despite the conservatively assessed potential for adverse environmental impacts associated with certain pathways, other benefits of the regulatory action, such as those described above, were determined to be overriding considerations that warranted approval of the proposed regulation.[4]

Comment (E):

"Methane digesters are false solutions to the significant environmental effects inherent in industrial animal agriculture."

CleanFuture Response (E): The commenter is incorrect stating that methane digesters are false solutions. In fact, this project and others similar to this project, voluntarily capture methane produced by traditional, legal, regulated manure handling practice. In fact, the absence of this project and other similar projects in California, would result in increasing methane emissions from the dairy sector resulting in perpetually poor air quality in the most vulnerable communities. Furthermore, not only is methane voluntarily captured at the dairy farm, but the methane is converted into renewable electricity for use as a transportation fuel in California which has the additional benefit of reducing California's dependence on fossil fuels. The Commenter seems to ignore the fact the benefit of this project and other similar projects has been confirmed by the California Legislature through the implementation of SB 1383. This landmark piece of legislation focuses on the need to reduce emissions from the dairy sector as a whole and although we agree digester projects are not the only solution, the fact that other solutions are available does not negate the large environmental benefit this project and other digester projects bring. Furthermore, use of liquid manure management and digesters is the only mitigation strategy that not only reduces dairy methane emissions, but also produces a renewable transportation fuel capable of reducing fossil fuel demand.

Conclusion

CARB earlier addressed another commenter's concerns on potential local air quality impacts from the production and use of alternative fuels[5], enclosed by reference as Exhibit 1, recognizing the fact that increased availability of low carbon electricity provides an alternative to the use of diesel thus resulting in lower diesel PM emissions throughout the state and particularly the valley where diesel trucks are one of the largest contributors to the diesel particulate matter. Pathways

[4] California Air Resources Board. Resolution 18-34 Attachment E Findings and Statement of Overriding Considerations, September 27, 2018. Accessed September 28, 2021 at https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/finalres18-34atte.pdf?_ga=2.40442274.1639234547.1576769077-182891752.1541114262

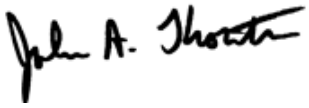
[5] https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/comments/tier2/b0019_cf.pdf

that support lower CI electricity are expected to facilitate the transition to zero emission transportation and therefore contribute to reductions in NOx emissions as well as emissions of diesel particulate and other toxic pollutants.

The purpose of the LCFS public comment process is to allow the public to have an opportunity to comment on factual inaccuracies in LCFS pathways posted prior to certification. Commenters have a responsibility to present factual evidence of why a pathway should not be certified. The Commenter instead presented baseless claims that are in no way reflective, or indicative of the sustainable farming practices employed at the Robert Giacomini Dairy.

This concludes CleanFuture's detailed responses to all comments pertaining to factual or methodological errors in the pathway application. CleanFuture requests that the Executive Officer certify the pathway pursuant to §95488.7(d)(5)(B). If the Executive Officer would like any further input or supporting information regarding these issues, please so advise and CleanFuture will promptly supplement this response. Thank you for the opportunity to respond to comments on the pathway application.

Sincerely,



John A. Thornton, President
CleanFuture, Inc.

Encl. Exhibit 1: California Air Resources Board (CARB) Response on B0019

California Air Resources Board (CARB) Response:

CARB appreciates the comments and agrees with commenters that it is important to consider potential local air quality impacts from the production and use of alternative fuels.

In response to the commenter's assertion that the project should be denied because it will harm air quality, CARB notes that the LCFS pathway approval does not permit the project to operate. That decision is separate, and outside of CARB's control. Local permitting and air quality agencies are required to consider air quality controls, and could be expected to appropriately address any issues consistent with law.
Rather, the CARB pathway approval is an accounting of the life cycle carbon intensity (CI) of electricity for use in transportation that can be used for LCFS crediting based on the electricity's displacement of gasoline and diesel use in vehicles. This calculation is a narrow decision as to those issues, and so does not result in air quality impacts of any kind. Moreover, the project uses emissions control technology (selective catalytic reduction) and must be in compliance with air quality regulations.
Electrification is one of the leading strategies for reducing greenhouse gas (GHG) emissions and decreasing criteria air pollutant emissions from transportation. Through the crediting of low carbon intensity electricity used to power light- and heavy-duty electric vehicles, ocean-going vessels at berth, and cargo handling equipment, the LCFS promotes increased electrification within the transportation sector. The alternative fuels and vehicles promoted under the LCFS have and will continue to result in net benefits for air quality statewide, as demonstrated in the air quality and health analyses conducted as part of the 2018 LCFS rulemaking.[1] CARB's emission analysis shows that, across the full fuel life cycle of dairy biogas to electricity pathways, there is an overall net reduction in NOx and PM, relative to the use of diesel fuel.[2] Moreover, the LCFS CI determination methodology for dairy biogas-electricity pathways[3] rewards efficiency improvements, which is driving the adoption and use of more efficient generation technologies including biogas fuel cells, which produce very low NOx emissions.[4]

The potential for local increases in criteria pollution associated with some fuel production processes and related activities was acknowledged and discussed as part of the Final Environmental Analysis for Amendments to the Low Carbon Fuel Standard in 2018.[5] That consideration also recognized the fact that increased availability of low

[1] Staff Report: Initial Statement of Reasons for the Proposed Regulatory Amendments to the Low Carbon Fuel Standard, March 6, 2018. See Chapter V.
[2] California Air Resources Board. Dairy Digester Emissions Matrix Presentation. May 2018.
[3] Low Carbon Fuel Standard (LCFS) Guidance 19-06. Determining Carbon Intensity of Dairy and Swine Manure Biogas to Electricity Pathways.
[4] California Air Resources Board. Executive Order DG-043. Distributed Generation Certification of Bloom Energy Corporation ES-5710 Fuel Cell Power Generation System, April 2018.
[5] Final Environmental Analysis for Amendments to the Low Carbon Fuel Standard and the Alternative Diesel Fuels Regulation, September 17, 2018.

carbon electricity provides an alternative to the use of diesel fuel thus resulting in lower diesel PM emissions throughout the state and particularly the valley where diesel trucks are one of the largest contributors to the diesel particulate matter. And, with the state's incentive and regulatory programs the opportunity to transition away from burning petroleum-based fuels, such as diesel, to non-combustion options (e.g., zero emission trucks) is unprecedented. Thus, pathways that support lower CI electricity are expected to facilitate the transition to zero emission transportation and therefore contribute to reductions in NOx emissions as well as emissions of diesel particulate and other toxic pollutants. In approving the LCFS amendments, the Board found that despite the conservatively assessed potential for adverse environmental impacts associated with certain pathways, other benefits of the regulatory action, such as those described above, were determined to be overriding considerations that warranted approval of the proposed regulation.[6]

[6] California Air Resources Board. Resolution 18-34 Attachment E Findings and Statement of Overriding Considerations, September 27, 2018.