



The Honorable Liane Randolph
Chair, California Air Resources Board
1001 I Street
Sacramento, California 95814

April 11, 2022

Dear Chair Randolph:

On behalf of Clean Energy, please consider the following comments concerning the March 29, 2022 workshop titled “Methane, Dairies and Livestock, and Renewable Natural Gas.”

Clean Energy is North America’s largest provider of renewable natural gas (RNG) transportation fuel with over twenty-five years of leading industry experience. We provide construction, operation and maintenance services for refueling stations. We have a deep understanding of the growing marketplace, are headquartered in California, and our portfolio includes over 550 stations in 43 states including a significant presence of over 200 locations in California.

We would like to express appreciation for CARB’s deliberate, science-based responses and approaches to the Petition for Rulemaking and the workshop, respectively. The latter was supported by empirical data, acknowledgment of the statutory foundation and the climate related goals of the state and utilized expert presenters which all reinforced the need for the dairy and swine feedstocks to be included in the Low Carbon Fuel Standard (LCFS) and California’s climate strategies for carbon and short-lived climate pollutant reductions. It was especially noteworthy that CARB staff demonstrated that dairies and swine operations were under strict regulation and are delivering significant greenhouse gas emissions reductions under the LCFS.

The Petition’s request to amend the LCFS to exclude or diminish the inclusion all fuels derived from dairy and swine manure would result in a substantial amount of greenhouse gas emissions to be released into the atmosphere while maintaining diesel as the dominant fuel in California’s heavy-duty transportation sector and a major source of black carbon. There is substantial danger to the climate if the dairy and swine industries are not provided the tools and incentives to properly mitigate manure emissions and prevent leakage. The fact that the California model is on track to achieve a 40% reduction of methane emissions relative to the United Nations’ target of 30% reinforces California’s leadership and purpose for such regulations.

ADDRESSING SHORT-LIVED CLIMATE POLLUTANT (SLCP) REDUCTIONS SHOULD BE THE PRIORITY

California must focus on climate change per state law and the top priority should be meeting statutory requirements to reduce climate pollution. Nothing can do this more effectively than low and net negative

carbon fuels that displace diesel because of their extremely low carbon intensities and because diesel is a major source of black carbon. Reducing short-lived climate pollutants will benefit the climate immediately, but time is running out to avoid the most severe and irreversible impacts of climate change. Climate change is happening more quickly and more destructively than was predicted even a few years ago. Climate scientists have said that we have only six to seven years left to slow warming or we will go beyond a 1.5 degree Celsius increase that will trigger very dangerous feedback loops. If we focus only on carbon dioxide reductions, we will not begin to reverse global warming for several decades or more.

In a presentation on SLCP reductions in late June 2021, Dr. V. Ramanathan from UC San Diego and the Scripps Institute stated that we have much less than 10 years to bend the warming curve.¹ He also said that the only lever we have left to make a difference in that time frame is reducing SLCP reductions.² Dr. Ramanathan, along with experts from Environmental Defense Fund and ClimateWorks Foundation, said we must go all out – and fast - on SLCP reductions by doing the following:

- Eliminate diesel use right away since it causes black carbon emissions and other climate pollution;
- Reduce wildfire emissions and open burning of forest and agricultural waste;
- Reduce methane from livestock and from landfill waste;
- Reduce HFCs³.

Scientific experts also agree that these same steps will provide enormous benefits for air quality, public health, agricultural productivity, forest health, and more.

Producing low and net negative carbon fuels from organic waste sources provides an unmatched opportunity to capture the methane that would have otherwise been emitted into the atmosphere through each source's natural decomposition cycle. Nothing can reduce black carbon more effectively than renewable fuels that displace diesel because of their low carbon intensities and because diesel is a major source of black carbon.

NET NEGATIVE CARBON INTENSITY

The LCFS is working and is incentivizing deep decarbonization in transportation fuels. Near-zero emission vehicles are the ONLY transportation technology available today in California that delivers LESS THAN ZERO GHG emissions, largely due to the use of dairy and swine feedstocks. Please consider:

- The average carbon intensity of all of the natural gas reported in the California LCFS is negative (-28.17 gCO₂e/MJ);

¹ Presentation by Dr. Verrabhadran Ramanathan, UC San Diego, on June 24, 2021, at MoveCA's symposium on SLCP Reductions.

² Id.

³ Id.

- No other transportation fuel in California has a net negative average for carbon intensity;
- RNG is expected to have a net negative carbon intensity for ALL OF 2021, the first time that this has happened for a calendar year FOR ANY TRANSPORTATION FUEL;
- Carbon intensities of fuel sold in California are continuing to decrease;
- RNG simply recycles carbon that is already present in the biosphere and does not add carbon to the atmosphere.

DAIRIES AND SWINE OPERATIONS ARE CONTRIBUTING TO LESS DIESEL FUEL USAGE

The removal of dairy and swine operations from the LCFS would result in more utilization of diesel fuel. Heavy-duty Zero-Emission Vehicles (HD ZEVS) are not expected to achieve widespread commercial readiness before the 2030 deadline as required in SB 32. The 2045 deadline in Governor Newsom's Executive Order to electrify the heavy-duty transportation sector is a "where feasible" goal. To emphasize this point, in a recent letter to the Legislature three air districts wrote, "We are fully supportive of the deployment of ZE technology, however, the reality is that it is not yet ready for mass deployment and there is a lack of sufficient charging infrastructure. Thus, for every low NOx truck not funded now, there will be one more diesel truck in its place further polluting our communities."⁴

CARB has an obligation to achieve near-term air quality improvements and include scenarios which acknowledge not every HD vehicle category is a good fit for electrification. Addressing both air quality and GHG emission goals in the heavy-duty sector is the key to success. Omitting a scenario of deploying low NOx trucks operated on deep decarbonized fuels will result in more diesel trucks on California's roads and highways, not less. Diesel trucks are the single largest source of air pollution in California's two most polluted air districts. Given that low NOx trucks operated on renewable fuel are such a critical component for California to achieve air quality goals, reduce GHG emissions, attain the National Ambient Air Quality Standards, and protect the health and well-being of Californians, we believe it is imperative that heavy-duty vehicle technology policy should effectively include the early adoption of low NOx trucks operated on low and net negative carbon fuels now.

Zero emission technology is anticipated to eventually be market-ready and cost-competitive with today's low NOx HD trucks, but until that time, immediate climate change solutions and Californians breathing unclean air should not be subject to a delay. Without a suite of incentives and regulations that promote the near-term implementation of low NOx technology, CARB will have failed its public health mission. CARB certainly has a long-term vision of a carbon neutral grid but that is many years away as we consider logistics and costs associated with the installation of generation, storage and distribution.

The time to act is now. California can work toward meeting the GHG emission reduction and extreme ozone attainment challenges in the South Coast and San Joaquin air basins. Diesel trucks are the

⁴ Letter to the Legislature, May 27, 2021, South Coast Air Quality Management District, San Joaquin Valley Air Pollution Control District, Bay Area Air Quality Management District

largest source of air pollution in both air basins, the two most polluted air districts in the United States.⁵ Not only are diesel trucks a leading cause for smog, but they are also the dominant toxic air contaminant in our air increasing cancer, heart and lung disease, asthma, and other public health impacts, as well as crop damage, impacts on forest health and water quality, and more.

Further reduction of NOx emissions is critical for attaining federal ozone and PM2.5 standards.”² The first major ozone deadline under the federal Clean Air Act is January 1, 2023, and even the deadline in 2031 is at risk. When dairy biomethane is used to replace diesel in heavy duty trucks, then it provides an even greater benefit for the climate and air quality.

CARB should continue to include dairy biomethane in the LCFS and incentivize its use to replace diesel in heavy duty trucks. In the short and medium term, dairy biomethane can be used in near-zero emission natural gas trucks that cut air pollution 90 percent compared to diesel trucks.⁶

Once zero emission heavy duty trucks are commercially available, then dairy biomethane can be converted to renewable hydrogen and electricity to power zero emission trucks, providing even greater benefits for air quality and the climate. Specifically removing or diminishing dairy and swine feedstocks from the LCFS would reverse the success of California’s climate policies and eliminate a substantial tool for significant carbon reductions.

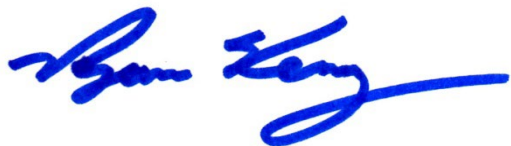
The immediate reduction of fugitive methane emissions is necessary to rapidly reduce the impacts of climate change. Animal manure can be collected on a single large farm or combined from several “cluster” farms and delivered to a single anaerobic digester for RNG production. If manure is stored in open lagoons that emit methane, moving it to enclosed digesters prevents those emissions. The RNG produced at dairies and swine operations also displaces fossil natural gas that would have been consumed by low NOx vehicles, thereby reducing CO2 emissions further. Avoided methane emissions and displaced fossil CO2 emissions can produce large reductions in carbon intensity. CARB’s assessment shows that RNG produced from dairy waste has one of the lowest carbon intensity (CI) ratings of any transportation fuel and can reduce greenhouse gas emissions up to 283%, with an average of 51% reduction (varies by feedstock).

We appreciate consideration of our comments and urge CARB to maintain its position as provided in response to the Petition for Rulemaking. CARB must align public policy to empirical data and science-based quantitative conclusions, and therefore continue incentivizing dairy and swine operation feedstocks. Other states have or are considering adopting their own LCFS because of California’s success. CARB should not abandon a working tool that is driving major carbon and short-lived climate pollutant reductions.

⁵ See, Miyasato, Matt, PhD, Deputy Director, South Coast Air Quality Management District, presentation to the California Energy Commission, *Air Quality and Near-Zero Emission, Heavy-Duty Natural Gas Engines*, June 2014; San Joaquin Valley Air Pollution Control District, presentation by Dave Warner, San Joaquin Valley Air Quality Management District, to the Dairy Methane Working Group, Sacramento, May 23, 2017.

⁶ See, EXECUTIVE ORDER A-021-0630, issued by the California Air Resources Board, September 10, 2015.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ryan Kenny". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Ryan Kenny
Senior Public Policy & Regulatory Affairs Advisor – Western U.S.
Clean Energy