

June 24, 2022

Ms. Rajinder Sahota, Deputy Director
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Draft 2022 Scoping Plan Update

Dear Ms. Sahota:

Brightmark appreciates the opportunity to submit comments on the *Draft 2022 Scoping Plan Update* (“*Draft Scoping Plan*”). We commend the tireless work of California Air Resources Board (CARB) members and staff in engaging with stakeholders to compile a very thoughtful Draft Scoping Plan.

Brightmark was founded in 2016 with the mission of solving some of the greatest environmental challenges facing the United States. One of these solutions is capturing methane emissions from organic waste, and through the natural process of anaerobic digestion produce biogas and digestate. Methane is a dangerous Short Lived Climate Pollutant (SLCP). As the *Draft Scoping Plan* underscores, methane along with black carbon (soot), and fluorinated gases (F-gases, including hydrofluorocarbons [HFCs] “have an outsized impact on climate change in the near term, compared to longer-lived GHGs, such as CO₂.... That means they have an outsized impact on climate change in the near term—they are responsible for up to 45 percent of current climate forcing. It also means that targeted efforts to reduce short-lived climate pollutants emissions can provide outsized climate and health benefits, within weeks to about a decade”.¹

In addition to reducing fugitive methane emissions from manure, biogas produced through state of the art anaerobic digesters can be further processed and converted into renewable natural gas (RNG) for use as a transportation fuel or used to decarbonize the gas and electricity sectors. Meanwhile, the digestate can be utilized as a fertilizer or soil amendment. Even when combusted, biogas and renewable natural gas may have carbon intensities that are neutral to negative due to averted methane emissions and their use to displace carbon intensive fossil fuels.

Brightmark has projects on dairy farms across the U.S., including in California. These facilities provide a win/win scenario for farmers and local communities; they help address methane emissions from organic waste produced at the local level and turn that waste into renewable energy and fertilizers. The LCFS program, and the certainty it provides to the market, is a key factor in the long-term success of projects like these to address environmental challenges.

¹ California Air Resources Board, *Draft 2022 Scoping Plan Update*, (released May 10, 2022) p. 23 “The United Nations Environment Programme’s Global Methane Assessment advises that achieving the least-cost pathways to limit warming to 1.5°C requires global methane emission reductions of 40–45 percent by 2030 alongside substantial simultaneous reductions of all climate forcers, including CO₂ and SLCPs.”

1. Proposed Scenario is the Correct Alternative.

Brightmark strongly supports the *Draft Scoping Plan's* Proposed Scenario. We concur with CARB that this scenario is the best alternative since it provides the greatest benefits and is most likely to achieve the requirements of SB 1383 and SB 32 and to decarbonize the California economy.

With regard to the reduction of SLCPs, the *Draft Scoping Plan* Proposed Scenario underscores that further reductions in methane of approximately 4.4 MMTCO_{2e} are required to achieve the 2030 methane emissions targets set by SB 1383. As the *Draft Scoping Plan* makes clear, “anaerobic digesters located at dairy and livestock lots combined with pathways in the LCFS for the bio-methane fuels produced are a key to reaching these goals and are required under SB 1383”. Towards this end, the *Draft Scoping Plan* calls for the installation of additional “state of the art anaerobic digesters that maximize air and water quality protection, maximize biomethane capture, and direct biomethane to sectors that are hard to decarbonize or as a feedstock for energy”.²

Brightmark strongly supports the methane reduction goals and strategy set forth in the *Draft Scoping Plan*. We note that anaerobic digesters converting livestock manure into biogas have already reduced 30% of the GHGs mitigated in the California Climate Investment Initiative with less than 2% of state funding. Moreover, they are doing so in a cost effective manner. In 2021, dairy digester projects removed 19,379 metric tons of CO₂ at a cost of just \$9 a ton, leading all other manure emission reduction initiatives.³ In short, anaerobic digester projects have economically and effectively helped California dairies comply with SB 1383 mandates at a time when energy, feedstock, and water costs are rising.

Brightmark also supports the Proposed Scenario because it will “deploy a broad portfolio of existing and emerging fossil fuel alternatives and clean technologies” including biogas⁴ Brightmark believes this approach of using all the tools in the tool kit is the best way to achieve AB 32 and SB 1383 mandates and carbon neutrality goals, while maintaining energy and transportation reliability, reducing air and water pollution, and maintaining the health of California’s economy.

² *Draft 2022 Scoping Plan Update*, Id. at page 187.

³ https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/2021_cci_annual pg. 29. See also: [Frank Mitloehner on Twitter: "In California, digesters are REDUCING emissions at an incredibly cost-effective rate. Digesters have reduced 30% of the GHGs mitigated in the California Climate Investment initiative with less than 2% of state funding. 2/ https://t.co/xFLnfMIX0d" / Twitter](#)

⁴ *Draft 2022 Scoping Plan Update*, Ibid. at page 41.

In addition to being a cost effective solution to reducing methane emissions at dairies and livestock yards, state of the art anaerobic digesters also benefit the health and safety of communities where they are cited. While biogas digesters prevent the release of dangerous methane from uncovered lagoons and therefore directly reduce GHG emissions, properly-designed biogas systems can capture as much as 80 percent of the methane that would be produced from a waste stream maintained at the cite. Biogas systems are also highly effective at reducing odors, via the biological conversion of odor-causing volatile organic acids to biogas.⁵

Manure treatment through anaerobic digestion can also reduce the number of pathogens within the manure and therefore limit the number of pathogens entering the environment ⁶ Biogas systems can also improve air quality by reducing the hydrogen sulfide (H₂S) released to air as compared to a non-Anaerobic Digester baseline.

For these reasons, Brightmark respectfully urges CARB to approve the Proposed Scenario. We also urge CARB to reject Alternative 1 as it eschews cost effective and beneficial climate solutions and is based on technology choices that are unrelated to lifecycle carbon emissions. In particular, Alternative 1 excludes further deployment of anaerobic dairy digesters that according to CARB's own analysis, are the most effective and the most cost-effective of all the state's climate investments.⁷

2. Scant Detail Concerning Transition of Biogas from LCFS Sends Troubling Signal to Dairy Digester Project Developers and Low Carbon Fuel Producers.

While the Proposed Scenario calls for deploying an additional 380 anaerobic digesters for dairies that have yet to implement manure control measures, the *Draft Scoping Plan's* cursory discussion about the role low carbon fuels like biogas will play in decarbonization plans beyond 2030 combined with falling LCFS credit prices sends an unintended market signal to dairy digester developers that may impact CARB's dairy manure methane reduction goals.

The Proposed Scenario states that “biomethane will largely be needed for hard-to-decarbonize sectors and will likely continue to play a targeted role in some fleets while the transportation sector transitions to ZEVs,” The *Draft Scoping Plan* also proposes decarbonizing industrial facilities by “displacing fossil fuel use with a mix of electrification, solar thermal heat,

⁵ *Biosystems Engineering*. Page et al. (2014). Characteristics of volatile fatty acids in stored dairy manure before and after anaerobic digestion. (118,16-28). <https://doi.org/10.1016/j.biosystemseng.2013.11.004>

⁶ Livestock and Poultry Environmental Learning Community. Saunders and Harrison. (2019). *Pathogen Reduction in Anaerobic Digestion of Manure*. <https://lpec.org/pathogen-reduction-in-anaerobic-digestion-of-manure/>
Anaerobic digestion of manure has a pathogen reducing effect with as much as 95-98 percent of common pathogens eliminated in mesophilic digesters. The reduction in pathogens has the potential to be of benefit for: manure application in impaired watersheds when trying to manage certain pathogens such as Mycobacterium paratuberculosis (MAP or Johne's) or Salmonella, and when considering a community-based anaerobic digester where manure from multiple farms is combined, treated, and AD solids and AD effluent returned to the farms. Livestock and Poultry Environmental Learning Community.

⁷ California Air Resources Board, *California Climate Investments*, 2021 Report to the California Legislature, Table 2, pages 15-20.

biomethane, low- or zero-carbon hydrogen, and other low-carbon fuels to provide energy for heat and reduce combustion emissions”

While Brightmark supports both of these goals, the *Draft Scoping Plan* contains scant details about how these different initiatives would play out. For example, in support of deploying biogas and methane for hard to decarbonize sectors, CARB cites current CPUC proceedings on biomethane procurement that have focused on residential and small business customers, and not on large industrial users. To our knowledge, there is no current CEC or CPUC proceeding focused on biogas procurement by major industrial gas uses. Because the wholesale market for industrial gas is very different from the regulated market for residential and small business retail gas sales, Brightmark is concerned about impact this change would have on the economics of anaerobic digester projects required to meet CARB’s goals for methane reduction. Brightmark urges CARB to carefully review these impacts as part of its Scoping Plan Update calculations.

Moreover, LCFS has been an integral party of CARB’s successful program to reduce methane emissions for California’s dairy sector. Due to the carbon neutral intensity of biogas, dairies and digester developers like Brightmark have been able obtain LCFS pathways for biogas produced from manure through anaerobic digestion. As CARB correctly states “private investment in alternative fuels will play a key role in diversifying the transportation fuel supply away from fossil fuels. The Low Carbon Fuel Standard is the primary mechanism for transforming California’s transportation fuel pool with low-carbon alternatives and has fostered a growing alternative fuel market.”⁸ Brightmark concurs that because of “the powerful market signals from the LCFS”, low carbon and carbon neutral renewable fuels have all gained market share and are displacing fossil fuels.

That is why the *Draft Scoping Plan*’s singular focus on ZEV deployment is disconcerting to Brightmark and other biogas producers. Although, the *Draft Scoping Plan* states that biogas and biomethane “will likely continue to play a targeted role in some fleets while the transportation sector transitions to ZEVs, the *Draft Scoping Plan* is silent on how the phase out of low and neutral carbon fuels in favor of ZEVs will impact biogas producers and the economics of CARB’s dairy digester project goals.

This lack of discussion combined with the precipitous drop in LCFS credit prices, send a market signal to anaerobic digester developers that the state is abandoning low carbon and carbon neutral fuels in favor of a long-term strategy to require 100 percent ZEVs without an economically viable strategy to transition those fuels into a new wholesale gas market. This uncertainty may impact the market for anaerobic digester projects. Accordingly, Brightmark urges CARB to engage with stakeholders to develop a thoughtful, economically balanced plan for transitioning biogas and other low carbon fuels to new markets as the state moves towards carbon neutrality.

3. Scoping Plan Must Focus on Lifecycle Emissions of Fuels and Technologies Deployed

⁸ *Draft 2022 Scoping Plan Update*, Ibid. at page 153.

To meet California's ambitious goal of Carbon neutrality by mid-century, CARB must take a close look at the lifecycle carbon intensity of all resources and the opportunities for carbon negative emissions. Unfortunately, the *Draft Scoping Plan* chases winners and losers without regard for their lifecycle carbon footprint.

The use of biogas, biomethane or hydrogen generated from dairy waste or diverted organic waste in transportation fuels or electricity generation can provide significant negative carbon emissions despite combustion. This is particularly true where the biogas or biomethane displaces fossil fuels. In fact, combustion of these renewable fuels can provide many times greater carbon reductions than solar or wind power, or battery storage each of which have some associated lifecycle carbon intensities due to the extraction of raw materials, manufacturing, or land use changes required for their deployment as energy resources. These emissions must be considered as party of any strategy to achieve carbon neutrality in the transportation and electricity sectors.

Because biogas from dairy anaerobic digesters reduces SLCP emissions from manure and displaces fossil fuels, its carbon intensity can be negative, and on a life cycle analysis basis, can be lower than other renewable energy resources including solar and wind power.

Brightmark urges CARB to use the *Draft Scoping Plan* to focus on the lifecycle carbon emissions of all fuels and technologies under discussion. Moreover, CARB must ensure that the LCFS program metrics are technology neutral and lifecycle carbon intensity based.

Respectfully Submitted,



Bob Powell,
Founder & CEO