

May 3, 2022

California Air Resources Board  
1001 I Street  
Sacramento, CA 95814

Re: 2022 Scoping Plan Update - Initial Air Quality & Health Impacts and Economic Analyses Results Workshop

Dear Air Resources Board Staff,

Thank you for the opportunity to provide input on the 2022 Scoping Plan Update - Initial Air Quality & Health Impacts and Economic Analyses Results Workshop. AgLand Renewables is a strong supporter of ARB's efforts to achieve carbon neutrality by 2045 and the strategies outlined in the plan, including the Low Carbon Fuel Standard (LCFS) program and efforts to reduce the carbon intensity of fuels. AgLand Renewables strongly supports the inclusion of nitrous oxide (N<sub>2</sub>O) avoidance within the 2022 Scoping Plan and the recognition the LCFS program as a tool to help reduce N<sub>2</sub>O emissions that are causing significant air quality and health impacts.

AgLand Renewables LLC, the California subsidiary of CleanBay Renewables Inc., owns and develops bioconversion facilities to provide the sustainable processing and conversion of poultry litter into renewable natural gas (RNG) or green hydrogen/EV charging for transportation fuel and organic controlled-release fertilizer. AgLand's process combines field-proven Anaerobic Digestion (AD) and Nutrient Recovery (NR) technologies into community scale bioconversion facilities specifically designed to process poultry litter. Unlike most AD projects, these bioconversion facilities are fully enclosed, closed-loop systems, meaning that all water and liquids are reused in the AD process and are not released into the environment. The processing of poultry litter into RNG and organic controlled-release fertilizer will significantly reduce N<sub>2</sub>O emissions, which are 300 times more potent than carbon dioxide and 10-15 times more potent than methane.

California is the leader in agricultural production, including poultry, and has a long history of supporting sustainable pollution prevention techniques and technologies to reduce emissions, improve resiliency, and provide economic benefits. AgLand is helping resolve pressing environmental and energy challenges facing California food and agricultural producers and providing low-carbon fuel and waste reduction solutions that substantially reduce greenhouse gas emissions, provide soil, and water quality benefits, and drive economic development in disadvantaged communities in the Central Valley. AgLand plans to install bioconversion facilities in the Central Valley—home of California's vast poultry production industry. The state-of-the-art facilities will provide a long-term, sustainable source of renewable transportation fuels and controlled-release organic fertilizers that substantially reduce climate pollutants and improve soil health in California.



California is in the top 10 of poultry production in the United States (egg layers and broilers) and generates approximately 700,000 tons of poultry litter annually from over 288 million broiler chickens. Each bioconversion facility would generate 765,000 MMBtu's of RNG each year, which would avoid approximately 1,000,000 tons Carbon Dioxide equivalent (CO<sub>2</sub>e) emissions annually. In addition to generating millions of MMBtus of RNG each year, the two California bioconversion facilities would create 250,000 tons of organic, controlled-release fertilizer each year, which will double the amount of land that California's organic poultry litter can serve organic fertilizers to and avoid harmful, conventional, non-organic chemical fertilizers.

AgLand Renewables is committed to supporting climate smart agriculture and environmental and public health, particularly in California's most disadvantaged agricultural communities. AgLand's ability to locally convert this manure-based nitrogen into a controlled release form that allows California farmers to retain access to their local and organic nitrogen sources while reducing the impact this concentrated nitrogen will have on the groundwater. Controlled-release fertilizers are less water soluble by design which reduces their infiltration rate into the groundwater. Controlled-release fertilizers that support crop growth with less soluble forms of nitrogen are critical for (1) improving nitrogen utilization efficiency (crop uptake of nitrogen) and (2) decreasing surplus nitrogen that ends up as nitrates in the groundwater and ultimately as N<sub>2</sub>O in the atmosphere.

The controlled released organic fertilizer produced through the bioconversion facilities brings precision agriculture to organic farming, as well as helping to improve nitrogen use efficiency and produces greater crop yields with less fertilizer and pesticide use. Controlled release fertilizers help to maintain and improve crop yields by closely matching plant growth requirements with a more natural nutrient stewardship framework. Repeated lab and field-based studies have concluded that controlled released fertilizers provide healthy soils that allow for substantial reductions of fertilizer loads and less need for fumigants, fungicides, and pesticide applications.

Market-based programs, such as the LCFS, are essential to deploy these important environmental projects in California. Nitrogen is generally considered the most important nutrient from an agronomic standpoint, but it is also a major source of GHG emissions and causes water quality issues throughout the state. There is a need to account for these N<sub>2</sub>O emissions from animal manures and synthetic fertilizers that currently off gas harmful N<sub>2</sub>O in massive quantities. N<sub>2</sub>O is one of the more stable major greenhouse gasses, and, as a result, it has the potential to perform significant long-term damage to the atmosphere and is the only major greenhouse gas that also destroys the ozone layer. Compared to the 12-year life of methane, the atmospheric lifetime of N<sub>2</sub>O is estimated to be about 150 years, which contributes to a global warming potential nearly 300x that of CO<sub>2</sub> before it is degraded back to N<sub>2</sub>. In addition, the "Ten New Insights in Climate Science for 2021" named N<sub>2</sub>O as the leading non-CO<sub>2</sub> contributor to climate change<sup>1</sup>.

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<sup>1</sup> <https://10insightsclimate.science/>



There is a need to include N<sub>2</sub>O avoidance within the 2022 Scoping Plan to meet our carbon neutrality goals and an opportunity to utilize the LCFS program to reduce harmful emissions, help further decarbonize transportation fuel, and accelerate substantial reduction of pesticide use and enhance sustainable farming practices. In addition, developing a N<sub>2</sub>O avoidance pathway provides the opportunity for market-driven approach to address critically important N<sub>2</sub>O emission, without additional regulatory pressure on California's agriculture sector.

In partnership with the Climate Action Reserve and ICF International, AgLand has developed a methodology and approach to calculating nitrous oxide emissions based on fertilizer pollution, including proposed methods for quantification, monitoring, reporting, and verification of avoided nitrous oxide impacts using controlled released fertilizers. Using best practices in GHG accounting, the approach utilizes geographically differentiated emission factors as compared to international or nation scale emission factors to calculate the emissions and emission reductions more accurately. We look forward to the opportunity to work with ARB to develop an appropriate carbon intensity (CI) score for avoided N<sub>2</sub>O emissions associated with feedstocks used in anaerobic digestion for RNG or green hydrogen/EV charging for transportation fuel.

Thank you for the opportunity to provide comments on the 2022 Scoping Plan Air Quality & Health Impacts workshop and for the excellent work that CARB is doing in leading the way in reducing the impact of harmful climate pollutant. We strongly support the inclusion of N<sub>2</sub>O avoidance within the 2022 Scoping Plan and the recognition the LCFS program as a tool to help reduce N<sub>2</sub>O emissions that are causing significant air quality and health impacts in California and beyond.

Sincerely,

Thomas Spangler  
Executive Chairman  
AgLand Renewables