January 6, 2022

California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Low Carbon Fuel Standard – Public Workshop: Potential Future Changes to the LCFS Program

Dear Air Resources Board Staff,

Thank you for the opportunity to provide comments on Potential Future Changes to the LCFS Program. AgLand Renewables is a strong supporter of the program's efforts to reduce the carbon intensity of fuels as well as the state's goals to achieve carbon neutrality.

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) 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. The processing of poultry litter into RNG and organic fertilizer will significantly reduce nitrous oxide (N_2O) emissions, which are 300 times more potent than carbon dioxide.

We thank you for the recent Public Workshop on potential changes to the LCFS program and for soliciting feedback from stakeholders. We appreciate the inclusion of stakeholder concepts in the presentation, especially the consideration of site-specific agriculture inputs in fuel pathway life cycle and analysis and recognition of additional opportunities to reduce associated emissions and carbon intensity of fuels.

California is the leader in agricultural production, including poultry, and has a long history of supporting sustainable pollution prevention techniques and technologies to 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 two bioconversion facilities in the Central Valley—home of California's vast poultry production industry—within the next five years. 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.

As ARB reviews potential changes to the program through this amendment process, we encourage the LCFS program to: 1) account for N_2O emissions from animal manures and synthetic fertilizers and (2) allow the displacement of N_2O emissions associated with feedstocks used in anaerobic digestion to be included in the carbon intensity for the RNG for transportation.

Why a Nitrous Oxide Avoidance Pathway is Needed

Including avoided N_2O within the LCFS will help drive significant improvements in on-farm efficiency and productivity, as well as reduce GHG emissions from both the displacement of transport fuels with poultry manure-derived biogas and reduced N_2O resulting from the use of poultry manure-derived controlled-release fertilizers, which substantially reduces harmful N_2O emissions currently off gassed in massive quantities by traditional, fast-release fertilizers.

N_2O 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_2O is estimated to be about 150 years, which contributes to a global warming potential nearly 300x that of CO_2 before it is degraded back to N_2. In addition, the "Ten New Insights in Climate Science for 2021" named N_2O as the leading non-CO_2 contributor to climate change[1].

There is an opportunity now to include the avoided N_2O emissions to reduce emissions within the LCFS program to help the State's AB 32 emission reduction goals and help further decarbonize transportation fuel. It will also facilitate jobs and economic investment within disadvantaged communities in the Central Valley and provide an additional avenue to help achieve carbon neutrality.

In addition, developing a N_2O avoidance pathway provides the opportunity for market-driven approach to address critically important N_2O emission, without additional regulatory pressure on California's agriculture sector.

N_2O Avoidance Pathway

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 through the use of 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 more accurately calculate the emissions and emission reductions.

The Climate Action Reserve has engaged in multiple exercises to build differentiated emission factors, using available defaults and data and using biogeochemical modeling – examples being the Reserve's Nitrogen Management and Soil Enhancement Protocols, which served as the starting point for the proposed methodology of N2O avoidance accounting.

The proposed LCA methodology is aligned with Climate Action Reserve's experiences and guidance related to Nitrogen Management and certified by ICF International. For the past two years, AgLand has been engaged with a diverse group of NGOs, academic institutions, and

[1] https://10insightsclimate.science/

governmental agencies to identify and validate a regional-based Nitrogen Utilization Efficiency method for determining N2O emissions from agriculture. The NOAA Global Monitoring Program and the NASA-sponsored ACT-America program have both amassed and continue efforts to collect real-time data on N2O emissions using satellite, airborne and ground sensors that serve as the baseline for N2O emissions regionally.

There is an opportunity now to include an Avoided N2O Pathway within the current amendment process based on the significant expansion of community experts and peer-reviewed research over the last five years. With such data available and a robust, science-based N2O lifecycle analysis framework, we look forward to the opportunity to support ARB staff to establish a LCFS pathway for avoided N2O emissions.

Thank you for the opportunity to provide comments on potential changes to the LCFS program. We look forward to the opportunity to share the proposed N_2O avoidance pathway in greater detail and to continue our work together to support the LCFS program and California's climate goals.

Sincerely,

Thomas M. Spangler III
President
AgLand Renewables LLC