January 7, 2022

California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: December 7, 2021 Public Workshop: Potential Future Changes to the LCFS Program

Dear Air Resources Board Staff,

Thank you for the opportunity to provide these comments following the California Air Resources Board's (ARB's) December 7, 2021 public workshop on "Potential Future Changes to the LCFS Program" (the Workshop). We appreciated the ARB staff presentation during the workshop and the request for comments on the contents of the presentation and public feedback received during the meeting. We commend ARB staff on their thoughtful proposals designed to achieve carbon neutrality in California by 2045 pursuant to Executive Order B-55-18 issued by former Governor Jerry Brown in 2018.

Chesapeake Utilities Corporation (CUC) and Kiewit Corporation are members of the renewable natural gas (RNG) industry and are currently exploring developing RNG production facilities, purchasing RNG made from poultry litter, or purchasing lower emissions fertilizer produced as a co-product of RNG from poultry litter produced through bioconversion. The production of RNG from poultry litter results in two low carbon products: (1) the primary RNG; and (2) lower emission fertilizer as a co-product. Both methane and $N_2O$ emissions are avoided in the production of RNG from poultry litter and through the use of the lower emissions fertilizer co-product in place of traditional fertilizers.

We believe it is in California's and ARB's interest to update the California Low Carbon Fuel Standard (LCFS) to account for and thus incentivize all forms of renewable fuels used in transportation that can demonstrate achieved greenhouse gas (GHG) emissions reductions, including from carbon, methane and nitrous oxide ($N_2O$). In fact, AB32, the California Global Warming Solutions Act, the originating legislation providing ARB's authority to regulate and design regulations to lower GHG emissions in California, directs the agency to take actions that will lower these three specific GHGs. It is notable that $N_2O$ emissions have been shown to be

300 times and methane emissions 25 times more potent to the atmosphere than emissions from carbon dioxide.[1]

Under the current form of the LCFS, ARB incentivizes RNG from dairy and swine manure by allowing for the carbon intensity (CI) scores of those fuels to account for avoided methane emissions. Since allowing for this accounting, California has benefitted from significant new production of these two types of RNG since the new volumes have led to remarkable carbon and methane emissions reductions in the California transportation fuel market. We urge ARB staff to propose to update the LCFS during the current process by similarly allowing for the CI score of RNG from poultry litter and its low emissions fertilizer co-product to account for the associated carbon, methane ***and*** $N_2O$ emissions. We have engaged EcoEngineers, a third-party GHG modeling and verification firm, to model and analyze potential carbon, methane and $N_2O$ emissions savings that could be achieved from RNG from poultry litter and its low emissions fertilizer coproduct. The initial analysis shows that RNG from poultry litter would likely have a CI score equal to or lower than that of RNG from swine or dairy manure when avoided methane and $N_2O$ emissions are taken into account.

We want to align ourselves with comments made during the Workshop opposing the petition currently before ARB for consideration that would alter the CI calculations of RNG from dairy and swine manure. As some of the stakeholders mentioned, there are many studies illustrating that the current CI scores associated with RNG that account for avoided methane emissions are not only accurate representations of the associated GHG emissions reductions from the fuel's lifecycle, but also illustrate a model by which ARB may incentivize additional GHG emissions reductions from more renewable fuels that will add to California's ability to achieve carbon neutrality by 2045.

We also want to align ourselves with the many stakeholders who expressed strong support for updating the LCFS to provide for specific agriculture inputs to be accounted for in the CI scores of fuels regulated under the program. The current version of the GREET model already provides for such inputs and California should adopt that type of accounting because it will incentivize the maximum potential GHG emissions reductions in the LCA of renewable fuels. It will not only provide fuel producers with the incentive to make fuels in ways that lead to the least amount of GHG emissions, but it will also incentivize farmers and others in the agriculture industry to produce feedstocks in ways that achieve additional measurable GHG emissions reductions that contribute to achieving California's climate goals.

Attached, please find the comment letter we submitted to ARB on January 5, 2022 calling for the agency to include in its 2022 Scoping Plan avoided methane and $N_2O$ emissions from the production and use of poultry litter-based RNG and its lower emissions co-product fertilizer within the Natural and Working Lands modeling scenarios. In the letter, we explain further why we believe the LCFS should be updated to account for avoided methane and $N_2O$ emissions from RNG from poultry litter and its lower emissions fertilizer co-product.

Thank you for the opportunity to provide comments on potential future updates to the LCFS. We are available to work with ARB and provide information regarding the benefits of RNG and lower emissions fertilizer produced from poultry litter.

[1] https://www.epa.gov/gmi/importance-methane

Sincerely,

Kevin McCrackin

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Assistant Vice President
Chesapeake Utilities Corporation

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Kiewit Development Company

January 5, 2022

California Air Resources Board
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Sacramento, CA 95814

Re: 2022 Scoping Plan Update – Natural and Working Lands Scenarios

Dear Air Resources Board Staff,

Thank you for the opportunity to provide these comments following the California Air Resources Board's (ARB's) December 2, 2021 Natural and Working Lands (NWL) Technical Workshop, which was held as part of the agency's 2022 Scoping Plan Update work. We appreciated the ARB staff presentations during the workshop and the request for comment on modeling various land management scenarios, including Scenario #1, which calls for minimizing disturbances, prioritizing conservation and maximizing short-term carbon. In particular, Scenario 1 calls for "maximizing climate smart agricultural practices and nutrient cycling." Other scenarios also call for increases in organic agriculture.

We are members of the renewable natural gas (RNG) industry and are all currently exploring developing RNG production facilities, purchasing RNG or purchasing lower emissions fertilizer produced from poultry litter through bio-conversion. We are strong supporters of ARB's efforts to achieve carbon neutrality by 2045 pursuant to Executive Order B-55-18 issued by former Governor Jerry Brown in 2018.

The production of RNG from poultry litter results in two low carbon products: (1) the primary RNG; and (2) lower emission fertilizer as a co-product. Both methane and $N_2O$ emissions are avoided in the production of RNG from poultry litter and through the use of the lower emissions fertilizer co-product in place of traditional fertilizers. ARB, through the Scoping Plan has an opportunity to incent these avoided emissions to help California meet its greenhouse gas (GHG) emissions reduction goals. Such incentive could be achieved by recognizing the avoided methane and $N_2O$ emissions achieved with RNG from poultry litter and its lower emissions fertilizer co-product.

Like RNG produced from cattle and swine manure that is currently incentivized under ARB's existing programs, poultry litter-based RNG is produced using anaerobic digestion (AD). But RNG made from poultry litter has the added benefit of using nutrient recovery to co-produce lower emissions fertilizer that results in further $N_2O$ emissions reductions by displacing traditional fertilizers. Currently, poultry litter and traditional fertilizers emit significant amounts of $N_2O$, which is a climate pollutant that is approximately 300 times more potent than carbon

dioxide.[1] Additionally, $N_2O$ is one of the more stable non-carbon GHGs and as a result, it has the potential to cause significant long-term damage to the atmosphere and its ozone layer.

Currently, the California Low Carbon Fuel Standard (LCFS) does not recognize (and therefore does not incent) the GHG emissions reductions benefits of RNG from poultry litter or its lower emissions fertilizer co-product, and it does not allow for the generation of LCFS credit on the avoided emissions—including $N_2O$ emissions—of either product.[2] Instead, the LCFS only recognizes avoided GHG emissions from RNG made from dairy and swine manure anaerobic digestion and organic waste that is diverted from landfills. We believe the LCFS must be updated to correct this discrepancy so that the program will help achieve the maximum benefits of producing RNG from poultry litter and better align with ARB's duty to implement regulations that result in the most technically feasible and cost-effective GHG emissions reductions, including reductions in methane and $N_2O$ emissions. Making this important change would also be consistent with ARB's prior recognition of avoided emissions from swine- and dairy-based RNG, as well as with the goals of the 2022 Scoping Plan and the NWL workshop.[3] Leveraging ARB's extensive experience regulating other GHGs, notably avoided methane emissions under the LCFS, to include avoided methane and $N_2O$ emissions from RNG from poultry litter and its lower emissions fertilizer coproduct represents a natural and critical next step in progress toward achieving California's climate goals. This step begins with modeling the benefits of avoided $N_2O$ and other GHG emissions from poultry litter RNG and its lower emissions coproduct fertilizer in the NWL scenarios.

In sum, we urge the agency to include avoided methane and $N_2O$ emissions from the production and use of poultry litter-based RNG and its lower emissions co-product fertilizer within the NWL modeling scenarios. These additions would be especially important under Scenario #1 seeking minimal disturbances. They would help incentivize important GHG emissions reductions that would enhance California's ability to achieve the state GHG emissions reduction goals, while avoiding unnecessary changes to current agricultural practices that might disadvantage small farmers.

**ARB Is Directed to Update the Scoping Plan to Achieve the Maximum Technically Feasible and Cost-Effective Reductions in Greenhouse Gas Emissions, Including Methane and**

AB32, the California Global Warming Solutions Act, was passed by the California Legislature in 2006 to provide ARB explicit authority to regulate emissions from mobile and other sources, so the agency could design rules and regulations that would achieve the ambitious greenhouse gas reduction targets included in then-Governor Arnold Schwarzenegger's 2005 Executive Order. These targets were updated in 2018 under then-Governor Jerry Brown's Executive Order providing for California to become carbon neutral by 2045.

AB32 directs ARB to "adopt rules and regulations" "to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions."[4] The law defines greenhouse

[1] See Josie Garthwaite, *Stanford Expert Explains Why Laughing Gas is a Growing Climate Problem*, Stanford News (Oct. 7, 2020) https://news.stanford.edu/2020/10/07/laughing-gas-growing-climate-problem/ .
[2] 17 Cal. Code Regs. § 95488.9(f)
[3] 25.5 Health & Safety Code §§ 38505, 38560.
[4] Id. § 38560.

gases to include methane and nitrous oxide.[5] It is notable that $N_2O$ emissions have been shown to be 300 times and methane emissions 25 times more potent to the atmosphere than emissions from carbon dioxide.[6]

AB32 further directs ARB to achieve maximum technically feasible and cost-effective GHG emissions reductions through updating the agency's Scoping Plan every five years, which is the reason for the agency's current work. The law guides ARB to include in the Scoping Plan update identified and recommended "direct emissions reduction measures, alternative compliance mechanisms, market-based compliance mechanisms, and potential monetary and nonmonetary incentives for sources and categories of sources that the state board finds are necessary or desirable to facilitate the achievement of the maximum feasible and cost-effective reductions of greenhouse gas emissions."

To this end, we urge ARB to identify and include avoided methane and $N_2O$ emissions achieved from RNG from poultry litter and its lower emissions fertilizer co-product in the agency's 2022 Scoping Plan Update. Particularly with the new target to reach carbon neutrality by 2045, and in accordance with AB32, ARB should include the most current and known technically feasible and cost effective mechanisms to achieve maximum reductions in California's GHG emissions, including from avoided methane and $N_2O$ associated with RNG from poultry litter. Doing so will only help speed the pace and capability for the state to achieve carbon neutrality by 2045.

**Updating the Scoping Plan to Include Avoided Methane and N2O Emissions from RNG Made From Poultry Litter Is Consistent with ARB's Treatment of RNG Made from Swine and Dairy Manure Under the LCFS**

We respectfully urge ARB to determine that including avoided methane and $N_2O$ emissions from RNG from poultry litter and its lower emissions fertilizer co-product is not only reasonable but warranted and since doing so would be consistent with current industry capabilities and with the agency's current treatment of RNG from swine and dairy manure. Producers are now incentivized under the LCFS to avoid harmful methane emissions in the production of RNG from swine and dairy manure since those avoided emissions are now included in the CI modeling for those renewable fuel types. The same incentive should be provided to RNG from poultry litter and its lower emissions fertilizer co-product. Moreover, avoided $N_2O$ emissions should also be included in the CI score for this type of fuel to help achieve even greater GHG reductions.

Currently, there are no incentives to avoid methane or $N_2O$ in the production of RNG from poultry litter. Yet, if these two GHG emissions were included in the model to determine the CI score of this fuel, we expect that not only would there be significant additional volume production and availability of low carbon RNG in California, but that significant additional methane and $N_2O$ emissions reductions would be achieved to the benefit of the state and its GHG emissions reductions goals. All of these emissions reductions should be included—and thus incentivized—in the CI score for RNG from poultry litter. Doing so would add negligible implementation work and costs for ARB staff, while providing for potential significant additional GHG emissions reductions to help achieve California's emissions reductions requirements. In fact, EcoEngineers, a third-party greenhouse gas modeling and verification

[5] Id. § 38505.
[6] https://www.epa.gov/gmi/importance-methane

firm, has conducted analysis demonstrating that RNG from poultry litter (including methane and $N_2O$ avoided emissions) would likely have a CI score equal to or lower than that of RNG from swine or dairy manure.

**Avoiding Methane and $N_2O$ Emissions from RNG from Poultry Litter and its Lower Emissions Fertilizer Co-Product is Technically Feasible and Cost-Effective**

The RNG industry is ready to begin producing additional gallons of low carbon RNG from poultry litter once sufficient incentives for production are included under California's Low Carbon Fuel Standard (LCFS). As previously stated, RNG from poultry litter is produced using AD. It has the added benefit of using nutrient recovery to co-produce lower emissions fertilizer that results in further $N_2O$ emissions reductions by displacing traditional fertilizers.

We hope that ARB agrees that the tremendous potential GHG emissions reduction benefits of accounting for avoiding methane and $N_2O$ emission from poultry litter through the production of RNG and fertilizer and to allow for LCFS credit generation on such products would far outweigh the negligible administrative burden and cost to ARB. In fact, this change alone has the potential to fundamentally change the poultry farming landscape for the better and dramatically reduce GHG emissions not only within California, but also throughout the United States. The practical result of this change would be not only to create a pathway to significantly reduce methane and $N_2O$ emissions, but to also displace significant volumes of higher carbon intensity transportation fuel.

**Incentivizing the Production and Use of Poultry Litter-Based RNG and Fertilizers will Directly Lower Agricultural Emissions without Affecting Day-to-Day Operations of Farmers; Thereby Meeting the Goals of the 2022 Scoping Plan and NWL Workshop**

A Scoping Plan that accounts for avoided methane and $N_2O$ emissions from RNG from poultry litter and its lower emissions fertilizer co-product would constitute a smart agricultural practice that prioritizes conservation of resources. The production of a low-GHG emission co-product in the form of fertilizer helps further innovative farming practices that result in emissions reductions through the displacement of traditional fertilizers. Traditional fertilizers lead to defined areas of nitrogen pollution and $N_2O$ emissions. To accurately address and account for this issue, there are regionally differentiated emission factors that allow for precise accounting of avoided $N_2O$ from the use of lower emissions fertilizers.

Modeling of avoided methane emissions from RNG from poultry litter and avoided $N_2O$ emissions from controlled-release fertilizers in the NWL scenarios will demonstrate the substantial savings from this simple practice and ultimately lead to an updated Scoping Plan that is able to achieve maximum feasible emissions reductions at minimal cost. Application of methane emission reduction from RNG and of $N_2O$ emission reductions from poultry litter-based lower emissions fertilizer, combined with extensive data and best available science, guarantees an effective strategy for tracking and reducing $N_2O$ emissions from the agricultural sector. Additionally, simply changing the type of fertilizer used will not negatively impact day-to-day farming operations and thus represents a minimally disruptive tool to fight climate change.

As a result of the forgoing, we anticipate that inclusion of avoided methane and $N_2O$ emissions from innovative uses of poultry litter in the modeling for all NWL scenarios, but particularly Scenario #1, would demonstrate a path forward for ARB and its sibling agencies to more efficiently and effectively incentivize industry practices that will help California achieve carbon neutrality, with minimal impact to farmers.

Thank you for the opportunity to provide comments on the 2022 Scoping Plan Update. We are available to work with ARB and provide information regarding the benefits of RNG and lower emissions fertilizer produced from poultry litter. We look forward to working with staff as the plan is further developed.

Sincerely,

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