GREAT PLAINS INSTITUTE

FROM: The Midwestern Clean Fuels Policy Initiative

TO: Rajinder Sahota, Chief, Industrial Strategies Division, California Air Resources Board

DATE: November 5, 2020

RE: Inclusion of farm-level greenhouse gas (GHG) emissions factors in lifecycle accounting for biofuels as part of the next round of Low Carbon Fuel Standard (LCFS) regulation revisions

Participants in the Midwestern Clean Fuels Policy Initiative wrote this letter to express multi-stakeholder interest in having the California Air Resources Board consider incorporation of agricultural GHG emissions as a potential regulation change for the California LCFS. It was written in response to the Board's request for feedback following its public workshop on October 14–15, 2020.

The Midwestern Clean Fuels Policy Initiative is a broad coalition of fuel producers and marketers, nonprofit and research organizations, scientists and engineers, and agricultural and industry stakeholders. The Initiative works to create economic benefits for the Midwest through policy, research, and education on the production and use of cleaner fuels. The Initiative is exploring a clean fuels policy at the state or regional level as a market-driven approach to achieving economic, energy security, climate, environmental, and public health goals. It released a white paper in January 2020[1] presenting policy considerations that are intended to guide further discussion about how a clean fuels policy can be designed and implemented in the Midwest.

The white paper, *A Clean Fuels Policy for the Midwest,* recommends that a clean fuels policy should "reinforce and complement existing efforts by the agricultural sector to increase the adoption of practices that improve soil health and water quality and have the potential to lower the carbon intensity of biofuel production by storing more soil organic carbon and reducing nitrous oxide emissions related to farming," and should "recognize emissions reductions at the farm level that contribute to the reduced carbon intensity of fuels." Going further, the white paper recommends addressing agricultural GHG reduction potential in three potential ways:

1. Ensuring that average farming emissions factors (as part of biofuel lifecycle assessment) are fair and accurate and incorporate soil organic carbon storage, recent increases in the adoption of conservation practices, and other factors, and that average emissions factors are developed at the state or sub-state level;
2. Developing a protocol to allow fuel producers to demonstrate that their feedstock suppliers are achieving an emissions factor lower than the average emissions factor for a given state or region and allowing for site-specific farm practice scoring, traceability, and verification; and
3. Setting aside a portion of overall credit revenue to directly invest in agricultural practices that benefit soil health and water quality and increase soil organic carbon storage, reduce nitrous oxide emissions, or both.

Emissions reductions from agriculture are a crucial component of a comprehensive decarbonization strategy. Potential

1. Midwestern Clean Fuels Policy Initiative, A Clean Fuels Policy for the Midwest (January 2020), https://www.betterenergy.org/wp-content/uploads/2020/01/Clean-Fuels-White-Paper-Final-2.pdf.

emissions reductions directly related to biofuel feedstock production include enhanced soil organic carbon storage, reduced nitrous oxide emissions related to fertilizer application, reduced energy use on the farm, and upstream emissions reductions related to manufacturing of fertilizer and other agricultural chemical inputs. Research estimates that 75 percent of past soil organic carbon losses (about 27 billion metric tons of carbon dioxide emissions or the equivalent of about 23 years of avoided emissions from 270 million US passenger cars) can be recovered through carbon sequestration.[2] According to the US Department of Agriculture Economic Research Service, corn starch from 37.9 percent of corn was used for ethanol production,[3] and the oil co-product from 34.3 percent of soybeans was used for biodiesel production during the 2017–2018 marketing year,[4] meaning that clean fuels policies with appropriate incentives in place can influence the adoption of conservation practices on a significant portion of US agricultural land. Research from Argonne National Laboratory and funded by the Advanced Research Projects Agency-Energy estimates a farm emissions factor for "highest emitting practices" of 33.3 gCO2e/MJ of ethanol and -15.9 gCO2e/MJ for "lowest emitting practices."[5] This research reveals significant potential to lower ethanol carbon intensity through sustainable tillage, planting of cover crops, improved nitrogen management, and reduced on-farm energy consumption.

If a protocol can be developed to compensate farmers for enhanced GHG reduction practices through LCFS credits, the credit value should be enough to attract interest from farmers and spur increased adoption of practices. Investment of LCFS credits into farm GHG reduction will result in real GHG reductions attributed to the fuel lifecycle and offer economic benefits to farmers. Getting the details right and developing a viable protocol could have an impact beyond California, both through feedstock purchases outside the state and by influencing policy and regulation design in other jurisdictions. It is a large environmental and economic opportunity.

We recognize that developing a protocol that is trusted by all relevant stakeholders and incorporates all relevant science will require time and engagement. The Initiative is actively discussing these issues and making efforts to develop specific recommendations on how such a protocol should be structured with respect to important issues associated with modeling, measurement, verification, additionality and data privacy. We would welcome the opportunity to collaborate with the California Air Resources Board to discuss the best available science and work through the protocol design considerations that would allow this to become a reality.

Sincerely,

Participants in the Midwestern Clean Fuels Policy Initiative

American Coalition for Ethanol

Antares Group

Aspiring Universe Corporation

Carbon Co-op 2.0

Center for Energy and Environment

Conservation Minnesota

Dr. Nicholas Jordan, Professor, Agronomy and Plant Genetic Department, University of Minnesota

Ecology Center

EBR Development, LLC

Energy Resources Center, University of Illinois at Chicago

Enogen at Syngenta

Guardian Energy

Kansas Corn

Minnesota Bio-Fuels Association

NATSO Alternative Fuels Council

Nebraska Ethanol Board

Renewable Fuels Association

South Dakota Corn Growers Association

Union of Concerned Scientists

2. Adam Chambers, Rattan Lal, and Keith Paustian, "Soil carbon sequestration potential of US croplands and grasslands: Implementing the 4 per Thousand Initiative," Journal of Soil and Water Conservation 71, no. 3 (May 2016): 68A-74A, https://doi.org/10.2489/jswc.71.3.68A.

3. "Data Products: Corn and Other Feedgrains," US Department of Agriculture Economic Research Service, accessed November 4, 2020, https://www.ers.usda.gov/data-products/#!topicid=14829&subtopicid=14847.

4. "Data Products: Soybeans and Oil Crops," US Department of Agriculture Economic Research Service, accessed November 4, 2020, https://www.ers.usda.gov/data-products/#!topicid=14829&subtopicid=14851.

5. Xinyu Liu et al., "Shifting Agricultural practices to produce sustainable, low carbon intensity feedstocks for biofuel production," Environmental Research Letters 15, no. 8 (July 2020), https://doi.org/10.1088/1748-9326/ab794e. ta-products/#!topicid=14829&subtopicid=14851.