Thank you for the opportunity to provide feedback on the Low Carbon Fuel Standard. We are writing to make CARB aware of the unintended consequences resulting from LCFS policies that directly impact the state of Iowa.

California is the second highest US consumer of ethanol in the transportation sector (Texas is first).

Iowa is the largest producer of ethanol. In 2021, 95 percent of the ethanol consumed in the US was produced in the Midwest.

Ethanol manufactured from corn has an outsized environmental footprint. Corn production in Iowa is associated with massive water pollution that extends from the drinking water in Iowa to the Dead Zone in the Gulf of Mexico. The shift to growing predominantly corn has led to changes in tilling and the increased application of nitrogen-based fertilizers. The enormous rise in nitrogen fertilizer use has increased nitrous oxide (N_2O) emissions. N_2O is a potent greenhouse gas—289 times as powerful as carbon dioxide. Carbon capture and storage (CCS) will only increase that footprint.

The additional energy required to capture the CO_2, pressurize it, and transport it across thousands of miles will exacerbate climate impacting emissions. The CO_2 generated by the parasitic energy load will not be captured. According to the IPCC, the money spent on outfitting the ethanol plants and increased energy production to capture the CO_2 could be used far more effectively if spent directly on renewables. In fact, in a letter to President Biden, more than 300 leading climate scientists said that CCS is a dangerous distraction from real climate solutions.

Furthermore, building all this CCS infrastructure locks in ethanol and gasoline, an inherently dirty fuel blend, for decades reducing incentives for investors or policy-makers to shift towards more sustainable forms of transportation. CCS guarantees climate-damaging business as usual. Iowa politicians are fighting every policy and law that might move the nation towards electric vehicles or public transportation. The LCFS is making their refusal that much easier.

Last in the litany of environmental ills of CCS is the fact that 80% of captured CO_2 is used for EOR. The policy of allowing the captured CO_2 to be used in EOR is counter-intuitive to efforts to reduce emissions. We should be immediately transitioning away from the use of fossil fuels. EOR is simply another way of "drilling" for more oil.

Incentivizing corn production in Iowa through the LCFS will only increase climate damaging greenhouse gas emissions, further pollute the water from Iowa to Louisiana and divert needed funds away from real climate solutions.

There are additional, specific costs to Iowa for California's LCFS since CCS will require thousands of miles of CO_2 pipelines across six states. Three pipeline projects are in the proposal stages here in Iowa. The pipelines will transport CO_2 captured from ethanol plants in Iowa, connecting to additional pipelines and ethanol plants in five other states. The declared plans are for two of the projects to sequester the piped CO_2 in Illinois, and one project to sequester the CO_2 in North Dakota. Other impacted states include Minnesota, South Dakota, and Nebraska.

Altogether there are over 4,000 miles of pipeline scheduled to be built as a result of the three Midwest projects. The pipelines will crisscross precious rural farmland, water ways, and Indigenous territory. Sections of the pipeline paths have been mapped out to run adjacent to the existing Dakota Access pipeline route. This means that landowners already impacted by Dakota Access would be again impacted by a CO_2 pipeline. Some counties in Iowa are facing two separate pipeline projects.

Iowa farmers are already familiar with the impacts of pipeline construction on farmland because of Dakota Access. Farmers have contended with soil compaction, drainage issues, and a 60-90 percent reduction in crop yields all along the pipeline's route. Academic studies and media reports corroborate these experiences.

If the corporations associated with the three different projects are unable to obtain voluntary easements from the Iowa landowners, they can seize the land against the landowners' wishes using eminent domain. Iowans' opposition to the pipelines is fierce.

There are public health hazards associated with CO_2 pipelines. Rupture of a highly pressurized liquid CO_2 pipeline results in an explosive release of an extremely cold (less than -70^o C) flood of liquid CO_2 that forms ground-hugging clouds of gas and small particles that continue to spread until supply is turned off and residual CO_2 in the pipe is depleted. CO_2 displaces oxygen, potentially killing everything in its path and rendering internal combustion engines inoperable. This could interfere with emergency responders' ability to reach the rupture site. Potential mass casualties would overwhelm rural emergency health systems.

These are not just hypothetical suppositions. A video of a test rupture of a CO_2 pipeline is available for viewing here. In 2020, a CO_2 pipeline in Satartia, MS did rupture, sending 49 people to the hospital and leaving many with long-term health impacts. More than 250 people required evacuation. First responders needed self-contained breathing apparatuses to conduct their rescues. Residents' cars ceased to run, and victims were found dazed or even unconscious. See the full story here.

The highly pressurized state of liquid CO_2, along with its corrosive nature when in contact with even small amounts of water, increases the risk of leaks, fractures, and ruptures in the pipelines. In Iowa, the pipelines are slated to be buried in farmland, where combines and tractors and cultivators that can weigh 70,000 pounds each, traverse while doing their respective tasks, increasing the risks of ruptures. The Pipeline and Hazardous Materials Safety Administration (PHMSA) released an advisory regarding CO_2 pipelines in May 2022, warning about the potential for damage to pipelines caused by earth movement and climate change, such as increased rainfall and higher temperatures, in response to the Satartia pipeline rupture.

Finally, all the harms listed above resulting from California's LCFS and its impact on Iowa, come back to harm Californians when Iowa ethanol is used as an offset or a carbon credit for polluting industries in California. Iowa ethanol as a carbon credit or offset is unjust. California Environmental Justice groups have already described the problems with carbon credits and offsets. We join our Environmental Justice allies by saying, don't use Iowa ethanol to harm, not

only Iowans, but Californians, who are already disproportionately burdened by pollution. Increasing and prolonging the production of corn ethanol through the LCFS is folly.

We urge CARB to repeal the Carbon Capture and Sequestration Protocol under the Low Carbon Fuel Standard that is incentivizing carbon capture projects attached to ethanol plants in the Midwest.

Food and Water Watch
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Mahmud Fitil, Land Defense Organizer

Iowa Citizens for Community Improvement
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