To: House Climate & Energy Finance & Policy Committee
From: Kathleen Schuler, MPH, Policy Director, Health Professionals for a Healthy Climate
Date: March 29, 2022 Hearing
RE: HF2083 Future Fuels Act

Health Professionals for a Healthy Climate (HPHC) is a multidisciplinary network of over 500 Minnesota health professionals that supports clean energy solutions to mitigate the worst effects of climate change on our health. Based on the latest report from the Intergovernmental Panel on Climate Change (IPCC), it is clear that the climate crisis can't wait. We need to enact policies that move Minnesota to reach net-zero carbon emissions by 2050 to avoid the worst effects of climate change on human and ecosystem health. In the context of the global climate crisis, Minnesota can't afford to lock-in programs that continue the use of fossil fuels, even if coupled with Minnesota-grown biofuels.

A Clean Fuels Standard (CFS) to be effective must be part of a comprehensive transportation decarbonization plan that includes incentives and resources for reduction in vehicle miles traveled (VMT) and a swift path to electrification of all vehicles, including medium and heavy-duty vehicles such as buses and commercial trucks. While a CFS policy purports to be technology neutral, it favors fuels that use the current infrastructure that supports gasoline blended with corn-based ethanol. Building out the infrastructure to support electric vehicles requires additional financial investment.[1] A CFS program may allow a default to business as usual which extends the life of liquid fuels, including gasoline blended with ethanol.

HPHC appreciates Rep. Todd Lippert's DE3 amendment to address some of concerns around water pollution and land use changes and the inclusion of more aggressive interim carbon reduction goals to get Minnesota to 100% carbon free by 2050. The amended bill represents a CFS model that is stronger than those implemented by other CFS states. However, based on experience with carbon reductions from CFS states and research on carbon intensity of corn ethanol, we are not confident that CFS can get us to 100% carbon free by 2050. Our concerns center on two issues: lack of evidence that a CFS can reduce greenhouse gas emissions to the level we need; and failure of current carbon intensity models to account for health, ecosystem and equity externalities.

Lack of evidence that a clean fuels standard program will reduce greenhouse gas emissions
CFS-type programs use performance-based incentives to reduce carbon emissions, as measured by modeling of carbon intensity (CI) across the life cycle of each type of fuel. Plevin et al[2] question whether a "performance-based" model works with a CFS, since the performance measures are based on modeling, not actual experience. Since the tailpipe emissions from gasoline are nearly identical to those of gasoline blended with ethanol, a CFS policy must incentivize a reduction in carbon emissions from growing, production or carbon sequestration and must not result in indirect increases in carbon emissions from changes in land use.

Since the predominant (87%) biofuel utilized today is corn ethanol, examining the experience with the existing federal Renewable Fuel Standard informs us of the pitfalls of measuring

carbon intensity, a key component of a CFS. A 2022 study by Lark et al that retrospectively looked at the results of the RFS between 2008 and 2016, found that carbon emissions from corn ethanol are at least equal to and may be as high as 24% greater than gasoline. The RFS increased corn prices, incentivizing increased corn cultivation, resulting in a 3-5% increase on fertilizer use which increased water quality degradants 3-5%. This study found that the cropland increased 26% more than would have occurred without the RFS. The RFS also increased phosphorus run-off and soil erosion. In addition, participation of farmers in the Conservation Improvement Program, which pays farmers to retire cropland for conservation, decreased after the RFS was implemented in 2007, resulting in decreased carbon sequestration. The authors conclude "… that contemporary corn ethanol production is unlikely to contribute to climate change mitigation." [3]

Failure of current carbon intensity models to account for health and environmental justice
HF2083, as amended by DE3, addresses some of the environmental externalities of a CFS, but a CFS must also address health and equity issues. CFS employs CI scores to account for life cycle carbon emissions in all processes in the supply chain. In addition to carbon, a CFS must also account for primary and secondary air pollution. Fine particulate matter from human-caused emissions is responsible for the premature deaths of 100,000 people in the U.S. each year.[4] Some of this fine particulate matter, such as soot and dust, is emitted directly, which is called primary fine particulate matter. Other fine particulate matter, called secondary fine particulate matter, is formed in the air from pollutants such as ammonia, which is an unregulated pollutant.[5] Corn ethanol production uses nitrogen fertilizer and manure, which produces ammonia and secondary fine particulates (PM2.5) and ozone. This is a concern for the health of rural communities in the Midwest.

In addition, a CFS may extend the life of liquid fuels which depend on fossil fuels, thus continuing the environmental injustice of endangering the health of communities of color who live near petroleum refineries. Over 6.7 million African Americans live in the 91 counties where oil refineries are located. "Many African American communities face serious health risks as a result of toxic pollution from industrial facilities that are often located blocks from their homes." [6]

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[1] Plevin et al, 2017.
[2] Plevin RJ, Delucchi MA, O'Hare M. Fuel carbon intensity standards may not mitigate climate change. Energy Policy. 2017;105:93-97.
[3] Lark TJ, Hendricks NP, Smith A, Gibbs HK. Environmental outcomes of the US renewable fuel standard. PNAS. 2022;119(9). https://www.pnas.org/content/119/9/e2101084119
[4] Tessum CW et al. Inequity in consumption of goods and services adds to racial-ethnic disparities in air pollution exposure. PNAS. 2029:116(13):6001-6006.
[5] Thakrar SK et al. Reducing mortality from air pollution in the United States by targeting specific emission sources. Envir Sci & Tech Letters. 2020;7:639-645.
[6] Fleischman L, Clean Air Task Force & Franklin M, NAACP. Fumes Across the Fence-Line: The Health Impacts of Air Pollution from Oil and Gas Facilities on African American Communities. November 2017. https://bit.ly/2WH0guO .