July 1, 2022

New York State Climate Action Council
Draft Scoping Plan Comments
NYSERDA
17 Columbia Circle
Albany, NY 12203-6399

Re: Why New York Should Include a Clean-Fuel Standard in its Final Scoping Plan

Dear Members of the Climate Action Council:

We are writing to applaud the Climate Action Council for including a Clean Fuel Standard (CFS) in the draft scoping plan, and to strongly urge the Council and New York State to include the CFS in its final Scoping Plan later this year.

Our companies represent three very different approaches to decarbonization. Each of us has a decarbonization vision that has begun or is near commercial deployment, and each of us intend to reach commercial scale this decade.

ClearFlame Engine Technologies is based in Geneva, Illinois. ClearFlame's mission is to decarbonize the "hard-to-electrify" segments of the transportation sector by combining the efficiency of a compression-ignition engine (more commonly called a "diesel" engine) with low-carbon, renewable biofuels – ClearFlame is taking the "diesel fuel" out of the "diesel engine." ClearFlame trucks are already demonstrating that a diesel engine, fueled by ethanol instead of diesel, can reduce GHG emissions by 45-50%. By the end of the year, ClearFlame will also be demonstrating that its technology can effectively decarbonize heavy agricultural equipment. ClearFlame is also developing a carbon-negative technology pathway. ClearFlame's technology has received government funding and private equity support from the U.S. Department of Energy, Argonne National Laboratory, Breakthrough Energy Ventures, Clean Energy Ventures, John Deere, and Mercuria.

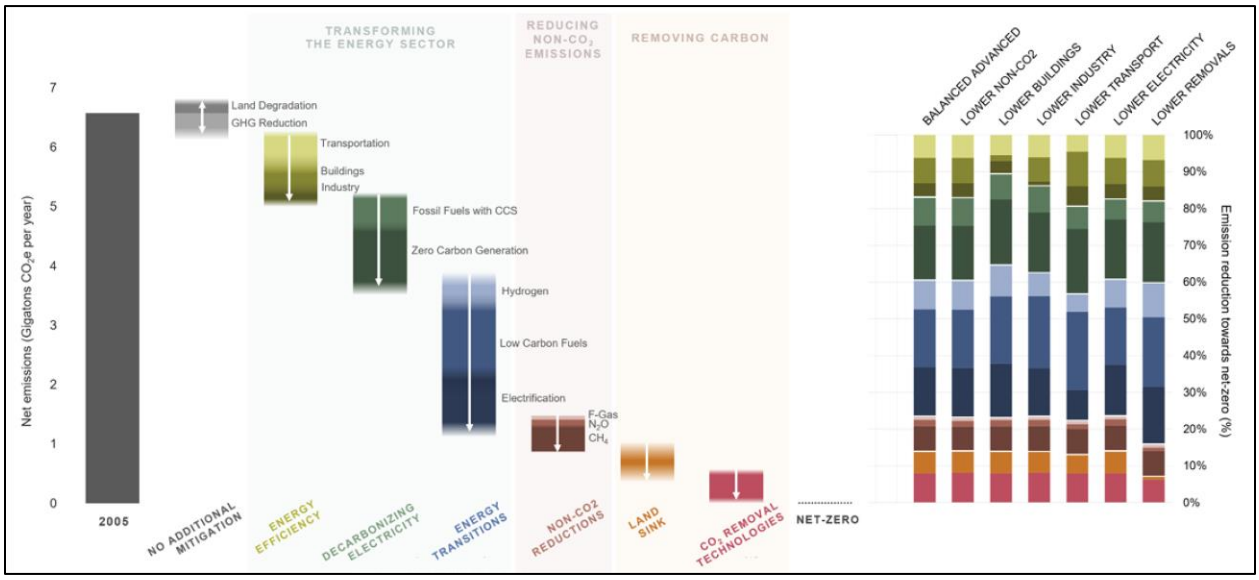
Remora is a climate technology start-up based just outside of Detroit, Michigan. Remora designs and manufactures a mobile carbon capture system for heavy, hard-to-electrify mobile sources. The technology retrofits onto Class 8 trucks ("semi-trucks") and captures at least 75% of its CO_2 emissions, directly from the tailpipe. Captured CO_2 is then permanently stored. The device also reduces tailpipe NO_X by 75%. Remora has raised tens of millions from investors and sold the device to nationally-significant companies. On-road partnerships launch in Q2-3 2022 with companies like Pepsi, Procter & Gamble, Unilever, and Ryder.

SixWheel is an electric vehicle technology that attaches to a diesel semi-truck, making it hybrid-electric instantly. Using a SixWheel system can reduce the CO_2 and NO_X emissions of a Class 8 truck by 85%, and can also reduce fuel costs by more than 20%. No retrofits are required to use the technology, meaning semi-truck electrification can happen in as little as 5 minutes. Major commercial partners will begin piloting SixWheel in Q2 2023.

As the Council has outlined, the transportation sector is the second-largest source of greenhouse gas emissions in New York State. Indeed, New York remains more than 95 percent reliant on petroleum in transportation, consuming 6.78 billion gallons of diesel and gasoline in 2019.

Right now, we are on a path of continuing diesel engine production for decades to come. According to Bloomberg/NEF, this is fueling a global 5 gigaton CO2 problem. Indeed, the Biden administration's plan to reach net zero greenhouse gas emissions by 2050 makes it clear that significant investments in low-carbon fuels, hybridization, and carbon removal technologies will

all be necessary, as illustrated by the various scenarios from the White House's November 2021 Net Zero report, as highlighted below.[1]



It is critical for New York to adopt policies that will accelerate the decarbonization of the entire transportation sector, including all highway and offroad vehicles, engines, and equipment. We strongly urge you to adopt a fuel-neutral, technology-agnostic, and performance-based CFS, which will accelerate decarbonization of all of our existing and future vehicles, engines, and equipment; accelerate vehicle electrification in the applications where electrification is the best solution; and ensure that we decarbonize the fuels that will be used in the combustion engines that will continue to be used for years to come. A CFS will enable and accelerate sector-wide decarbonization at scale, this decade.

Besides the environmental benefits that accompany a CFS, this policy will help create the fuel-neutral, technology-neutral market that will reward innovative, solution-focused companies like ours, as well as other innovators. if companies like ours succeed, New York's climate plan will also succeed.

Here's why: Even under the most ambitious electrification strategy (Scenario 3 of DEC's Integration Analysis, which assumes 98% of all passenger vehicle sales and 40-50% of all heavy-duty vehicles are ZEVs), roughly one third of the energy used to propel the State's highway

[1] "The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050," November 2021 (the "Net Zero" report), page 7.

vehicles in 2050 will still come from fossil fuels. Even under this ambitious scenario, ZEV sales increase gradually, millions of gasoline and diesel vehicles continue to be used on New York roads, and agricultural or other offroad diesel engines and equipment are not decarbonized at all.

Technologies like ours can bend this curve dramatically, by expanding the use of low-carbon, renewable biofuels into the long-haul trucking, agricultural equipment, and offroad diesel markets; by introducing carbon capture technology into the trucking sector, and by enabling rapid hybridization among existing diesel trucks that will still be on the road then.

A CFS will send clear near-term and long-term market signals that will incentivize all low-carbon fuels and vehicle technologies, and that will disincentivize high-carbon fossil fuels everywhere. Instead of prohibiting or mandating any particular fuel or technology, a CFS allows the marketplace to determine which fuels or technologies are the most effective at reducing carbon emissions and meeting the needs of the vehicle or equipment owner or operator in each location or application. This approach will accelerate investment in low-carbon fuels, vehicles, and technologies, and will generate funds from the remaining high-carbon fuel providers that will be invested in the charging and fueling infrastructure that will be necessary to shift to lower carbon solutions with each passing year.

Besides accelerating both electrification and decarbonization, a CFS will improve air quality and human health in the State's low-income communities of color and other under-served and Disadvantaged Communities. It is well understood that these communities breathe disproportionate levels of particulate matter and other toxic diesel emissions, due to their proximity to commercial truck routes, warehouses, depots, wholesale food markets, and other areas of concentrated diesel exhaust. A properly-constructed CFS will accelerate the retirement of these dirty diesels in these communities,[2] thereby providing them with significant air quality and human health benefits when today's dirty diesels replaced by tomorrow's electric or decarbonized fuels, vehicles, and technology systems.

[2] For example, the CFS could provide incentives for fleets to electrify or decarbonize their fleets that operate or are housed in these communities; can provide funding to ensure that school and transit bus fleets meet their mandates to electrify by 2035 and 2040, respectively; or can require public utilities to focus their infrastructure investments in these communities.

Thank you for considering our views. We welcome the opportunity to present our technologies in greater detail to you and your colleagues, or to assist your efforts in any other way that is helpful.

Sincerely,

BJ Johnson
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