

March 15th, 2023

Matthew Botill, Assistant Division Chief Industrial Strategies Division California Air Resources Board 1001 I Street Sacramento, California 95812

Cheryl Laskowski, Branch Chief Transportation Fuels Branch California Air Resources Board 1001 I Street Sacramento, California 95812

Via: Electronic Submittal

Subject: <u>Transfer Flow, Inc.'s Public Comments on The California Air Resources Board's Low</u> <u>Carbon Fuel Standard</u>

Dear Chiefs Botill, and Laskowski,

Transfer Flow, Inc. is pleased to submit our written comments to the California Air Resources Board (CARB) regarding the proposed changes to California's Low Carbon Fuel Standard (LCFS). Transfer Flow has been in business in beautiful Northern California since 1983, manufacturing high-quality liquid fuel systems. As the industry's leading California legal aftermarket fuel tank manufacturer, Transfer Flow is a knowledgeable and proficient voice within the transportation industry. Transfer Flow has been issued over 295 executive orders throughout the years and has and will continue to participate in the rulemaking process. In 2016, Transfer Flow received the small business of the year award from the California State Assembly. Our comments are as follows:

Transfer Flow would like to commend CARB's Low Carbon Fuel Standard as the most effective regulatory action CARB can take to achieve deep, rapid emissions reductions from mobile sources. Transfer Flow supports decarbonizing the transportation fuels sector as quickly as is feasible.

The problem with petroleum-based fossil fuels is that they take carbon that's been locked in the ground for hundreds of thousands of years and releases it into the atmosphere, hence disrupting the carbon balance. When we use biofuels as a source of transportation fuels, we repurpose



carbon that's already part of the natural carbon cycle instead of emitting additional carbon into the atmosphere. Using renewable natural gas (RNG) created from swine manure as an example, whether that swine manure was going to sit there off-gassing in a sewage pond or is used as transportation fuel, either way, it is emitting the same emissions into the atmosphere. That's known as the Law of Conservation of Mass, discovered by Antoine Lavoisier in 1789. Matter is neither created nor destroyed but only changes form in relation to other matter.

If the pig or cow whose manure is used to create renewable natural gas had never been born and had never existed and therefore had never eaten the grass farm animals eat, and that grass had lived its life and died, it still would have become rotting biomass, releasing carbon into the atmosphere. A new plant would have breathed that atmospheric carbon in and used it for new growth, which is the natural carbon cycle.

As long as humans are going to be consuming meat, dairy, or any other number of animal biproducts and using factory farming to obtain those goods, we will need to negate the climate impacts associated with conducting factory farming. The California Air Resources Board's scheme to force any farmer creating RNG to put that RNG into a pipeline to be shipped to an electricity-generating power plant to be turned into electricity to be shipped back to that same farmer to be used to charge the electric farm equipment CARB will force that farmer to convert to instead of simply allowing that farmer to run their farm equipment off their own locally created RNG is ludicrous.

Not all biofuels are created equally. A recent study from The University of Wisconsin shows that due to land management practices, corn-based ethanol offers no emissions benefits over the use of traditional petroleum-based fossil fuel gasoline¹. Why, then, is ethanol the most commonly available biofuel? In 2007, The Energy Independence and Security Act (EISA) was passed with the goal of moving The United States toward greater energy independence and security.

Electric vehicles are the opposite of energy independence. Electric vehicle battery chemistry differs significantly from traditional internal combustion engine batteries. A conventional internal combustion engine uses a typical lead-acid battery. The most common battery chemistry used in an electric vehicle is nickel manganese cobalt which has been linked to many horrific human rights abuses². There are a limited number of locations around the world where the minerals needed to manufacture electric vehicle batteries are found. 70% of the cobalt used in electric vehicle batteries comes from a single country, the Democratic Republic of the Congo. 80% of the battery supply chain is owned by China. As we have seen recently in several local domestic terrorist attacks ^{3,4,5,6}, an attack on the power grid could render electric cars located in

¹ <u>https://news.wisc.edu/at-bioenergy-crossroads-should-corn-ethanol-be-left-in-the-rearview-mirror/</u>

² <u>https://www.nytimes.com/2023/01/23/books/review/cobalt-red-siddharth-kara.html</u>

³ https://www.cnn.com/2023/02/04/us/us-power-grid-attacks/index.html

⁴ <u>https://lasvegassun.com/news/2023/feb/12/call-attacks-on-the-us-power-grid-what-they-are-do/</u> 1444 Fortress Street, Chico, CA 95973 | (530) 893-5209 | (800) 442-0056 | fax (530) 893-0204 | www.TransferFlow.com



affected regions useless. This is especially concerning when we consider the possibility of a natural disaster or, heaven forbid, an international conflict.

According to the United States Geological Survey, a major earthquake will likely threaten the entire San Francisco Bay Area region before 2032⁷. As we recently saw in Florida during the aftermath of Hurricane Ian, electric vehicles are poorly suited for emergency response as water damage causes the batteries to corrode and spontaneously combust^{8,9,10}.

If we look at DANNAR's heavy-duty, off-road, all-electrical equipment recently touted by CARB's CORE program,¹¹ we see that the equipment comes with "an optional 60 kWh Tier 4 generator provides 600 kWh of continuous, off-grid electricity and battery recharging. Combined with a 50-gallon fuel tank, the DANNAR can recharge itself for multiple days before refueling.¹²" When CARB impetuously outlaws internal combustion powertrains and portable generators, but stationary generators are still allowed, a heavy-duty EV equipped with a generator to charge the batteries is the solution industry has come up with.

Recently, New York City tried to follow California's lead and adopt a city-wide municipalities EV requirement. They quickly learned EVs do not contain the necessary energy density required for snow removal.^{13,14} Many places in California receive deep snow every winter, and with increased extreme weather events as a result of climate change, the impracticality of EVs for emergency response will need to be reconciled.

One of the major contributing factors to the devastating wildfires affecting California over the last several years is, besides climate change, decades of forest mismanagement leading to unhealthy forests filled with rotting biomass. A healthy forest is a carbon sink, and an unhealthy forest is a carbon source. In 2022, UC Berkeley published a study that the best way to clean up these unhealthy forests would be to convert that rotting biomass into biofuels¹⁵.

⁵ <u>https://www.cbsnews.com/news/physical-attacks-on-power-grid-rose-by-71-last-year-compared-to-2021/</u>

⁶ <u>https://www.justice.gov/opa/pr/three-men-plead-guilty-conspiring-provide-material-support-plot-attack-power-grids-united</u>

⁷ https://earthquake.usgs.gov/earthquakes/events/1906calif/18april/whenagain.php

⁸https://www.dailymail.co.uk/sciencetech/article-11291585/Electric-vehicles-exploding-Florida-Hurricane-Ianswater-damage-makes-batteries-corrode.html

⁹ <u>https://thehill.com/policy/equilibrium-sustainability/3698784-hurricane-ian-damage-leads-to-spontaneous-</u> <u>combustion-of-evs-in-florida/</u>

¹⁰ <u>https://www.nfpa.org/News-and-Research/Publications-and-media/Blogs-Landing-Page/NFPA-Today/Blog-</u>Posts/2022/10/19/Experts-Warn-of-Electric-Vehicle-Fires-After-Hurricane-Ian-Damages-Lithium-Ion-Batteries

¹¹ https://youtu.be/wggGuAWbtyE

¹² https://www.dannar.us.com/platforms/

¹³ <u>https://gothamist.com/news/snow-go-for-nycs-electric-garbage-trucks-that-cant-handle-winter-weather</u>

¹⁴ <u>https://www.autoevolution.com/news/new-york-city-s-new-all-electric-garbage-trucks-can-t-handle-the-heavy-snow-207305.html</u>

¹⁵ <u>https://bof.fire.ca.gov/media/mn5gzmxv/joint-institute-forest-biofuels final 2022 ada.pdf</u> 1444 Fortress Street, Chico, CA 95973 | (530) 893-5209 | (800) 442-0056 | fax (530) 893-0204 | www.TransferFlow.com



Regulators tend to think of disadvantaged communities as inner-city communities of color, but California also contains plenty of disadvantaged rural communities. Currently, there is not a public charging station within 60 miles of my hometown, Quincy, California. As such, an electric vehicle driver cannot choose to visit Quincy, California, if they do not know someone who will allow them to charge at their home or business. The forests of the Sierra Nevada mountains surrounding Quincy, California, are choking in rotting biomass build-up. Yet, CARB wants to dictate to industry that producing renewable, drop-in gasoline from the surrounding forest's biomass would not be an acceptable climate solution, even though that renewable, dropin gasoline could be manufactured locally, creating high-paying local jobs and requires no change in behavior from consumers. CARB is deciding to forgo this solution in favor of a highly polluting, human-rights-violating electric vehicle battery.

I am attaching in the footnotes a link to CARB OEM E.O. # A-021-0744 for a huge, 11.9-liter, class 8 heavy-duty truck engine¹⁶. This huge class 8 heavy-duty engine tested at 0.01 grams per brake horsepower-hour of NOx in the Federal Test Procedure and 0.000 grams per brake horsepower-hour of NOx in the supplemental emissions testing.

The average carbon intensity (CI) of electricity in the California power grid is 76.73 gCO2e/MJ. When we combine this with the CI of the battery used as fuel which is 38.13 - 66.26 gCO2e/MJ,¹⁷ we get an average total CI of between 114.86 to 142.99 gCO2e/MJ.

Even though many biofuels have a carbon intensity far lower than that CI of the electricity grid, CARB staff has decided that the 0.01 grams per brake horsepower-hour of NOx the class 8 engine described above creates outweighs the climate benefits of using these deeply carbon-negative biofuels.

Argonne National Laboratories advocates for using algae as a source of biofuels[.] The University of Wisconsin supports replacing biofuel made from corn with biofuel made from cover crops, primarily switchgrass¹⁸. Cummins¹⁹ and Toyota²⁰ are both advocates of the hydrogen²¹ internal combustion engine. Yet, CARB staff has decided that unless that hydrogen is used in a battery-electric fuel cell vehicle, it will not be allowed as fuel for a hydrogen-powered internal combustion engine regardless of how low-NOx or clean that hydrogen-powered internal combustion engine may prove to be.

¹⁶<u>https://ww2.arb.ca.gov/sites/default/files/classic/msprog/nvepb/executive_orders/EO%20Web%20Files/B_003</u> 3/mde-hde_hhdd-ub_a-21-744_uid--x-0-3976_sdt--20210824.pdf

¹⁷ <u>https://californiacompostcoalition.org/mobius/wp-content/uploads/2022/11/Life-Cycle-Impacts-of-Zero-Emission-Vehicles-Manufacturing-3.23.22.pdf</u>

¹⁸ <u>https://iopscience.iop.org/article/10.1088/1748-9326/ac2e35/meta</u>

¹⁹ <u>https://www.wardsauto.com/industry-news/cummins-becoming-big-player-hydrogen-transition</u>

²⁰ <u>https://fortune.com/2022/10/02/toyota-ceo-electric-vehicles-hype-department-store-of-powertrains/</u>

²¹ <u>https://www.linde.com/news-media/press-releases/2023/linde-to-increase-green-hydrogen-production-in-california</u>

¹⁴⁴⁴ Fortress Street, Chico, CA 95973 | (530) 893-5209 | (800) 442-0056 | fax (530) 893-0204 | www.TransferFlow.com



When CARB's ridiculous, electrify-everything strategy fails miserably as it's impractical, the Low Carbon Fuel Standard will be the backup plan that achieves true carbon neutrality within our beautiful state.

In specific applications, such as an inner-city commuter car, electric vehicles (EVs) are a great solution, but for many applications, electric vehicles are ill-suited. Even surveys conducted by CARB in the Advanced Clean Cars II rulemaking activity showed that 91% of households that own an EV as their primary form of transportation own a second, non-electric vehicle.

Transfer Flow suggests CARB reevaluate and encourage the usage of all near-zero technologies as what regulators think is a good idea may be creating more harm.

In closing, Transfer Flow would like to thank CARB for the opportunity to comment, and we look forward to being a productive part of positive change within the liquid fuels industry.

Sincerely,

Laurel Moochead

Laurel Moorhead, E.I.T. Regulatory Compliance Engineer