



September 10, 2020

Rajinder Sahota
Chief, Industrial Strategies Division
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Achieving Carbon Neutrality in California

Dear Ms. Sahota,

Thank you for providing the opportunity to comment on E3's report on how California can achieve carbon neutrality. I write on behalf of World Energy, a global biofuels supplier and California's largest in-state producer of advanced biofuels, to provide additional information about low- and zero-carbon fuels for your consideration in the economic analysis.

World Energy is one of the most veteran biofuel companies in North America. World Energy has seven biodiesel production facilities and one sustainable aviation (SAF)/renewable diesel (RD) facility, totaling over 300 million gallons of renewable fuel production capacity among its assets. Our SAF / RD facility is located in Paramount, California, and also produces renewable jet fuel and naphtha. Our Paramount refinery is currently being converted to produce 350 million gallons of biofuel per year with completion anticipated in 2022.

World Energy's investments in converting a California petroleum refinery to a renewable fuel production facility are a true LCFS success story. This is the only renewable diesel facility in the state of California that makes 100% renewable fuel. It is the world's first facility designed and operated to produce sustainable aviation fuel. We make high quality, zero-sulfur SAF, RD and gasoline (naphtha) that is some of the lowest carbon fuel on the planet. In 2018, we announced a \$350 million investment in that facility to grow from 40 million gallons to 350 million gallons a year. This investment is a direct response to California's LCFS. Once complete, the Paramount facility will be able to meet 10% of California's diesel demand. Today we have approved LCFS pathways with CARB that confirm greater than 75% reduction in carbon emissions. Through current and ongoing investments in green hydrogen production World Energy has confirmed with CARB the ability to establish a pathway to zero carbon liquid transportation fuels production at our Paramount facility.

The company is also a producer of clean, BQ-9000 certified biodiesel for the California market. All of our fuels have undergone years of rigorous testing and regulation to demonstrate all of the full array of environmental, economic, and other societal benefits.



Our specific feedback on the E3 Carbon Neutrality draft report is as follows:

According to CARB’s own analysis (see Figure 1), there will continue to be internal combustion engine (ICE) sales into 2050 in California. There will be greater need for low carbon liquid fuels than the E3 report indicates, given the significant amount of market share of ICEs. This is where a company like World Energy is well-positioned to deliver low carbon solutions. Our ongoing refinery conversion will allow us to deliver directly to the California market, at approximately 10% of the state’s diesel demand.

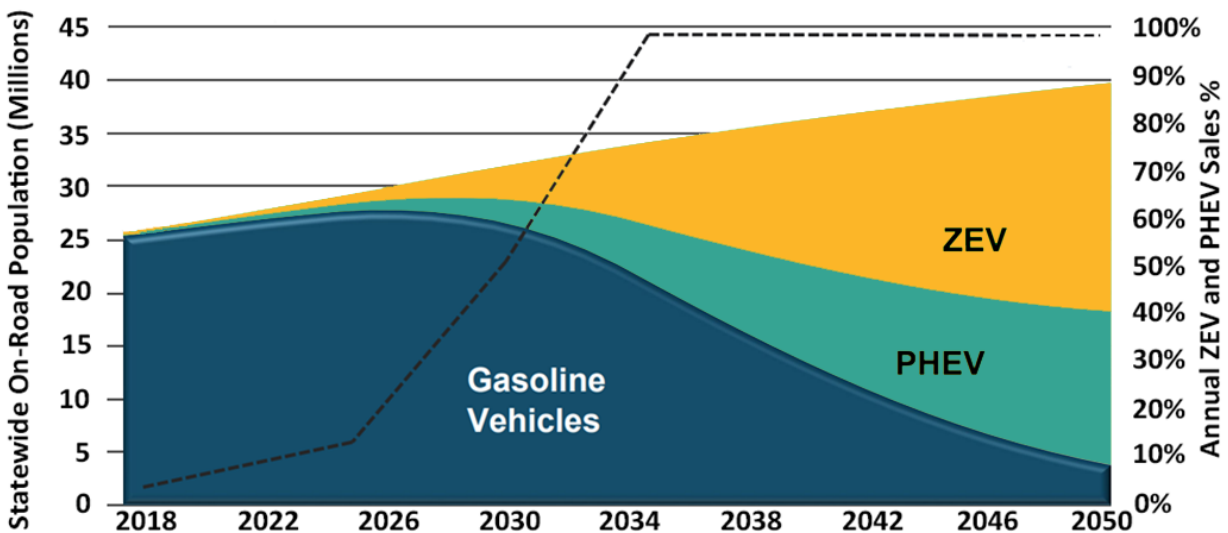


Figure 1. EV penetration in California. Source: CARB, 2020

The assumptions underlying E3’s report significantly constrain the amount of low carbon liquid fuels available to California based on a biomass assessment from US DOE’s Billion Ton study. If the United States and the rest of the world were on a similar carbon reduction trajectory to California, it would be appropriate to constrain California’s consumption to 20% of the total available biomass. However, with California as a leader in low carbon energy consumption, it is reasonable to assume that for the next few decades the state will consume a disproportionate amount of the biomass available. Naturally over time this would equilibrate as other jurisdictions become more competitive for low carbon energy. In the initial years while California is such a worldwide leader, much of the biomass would be available to California. These are the crucial years when our carbon reductions matter the most, and we should take advantage of all resources available.

Also, the economic report assumes 50% of in-state aviation will be electrified by 2050. We are the largest commercial producer of SAF and work closely with our partners in the aviation industry. From what we know of the development progress of electric aviation, this would be an exciting stretch goal for the state, but not an assumption for a foundational economic report. Instead, we encourage CARB and E3 to look at the announcements from World Energy

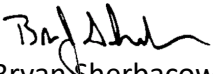


and our competitors, pointing to an increase in SAF production both inside and outside the state in coming years. Our fuel is already commercially produced and utilized by United Airlines, Amazon, the Department of Defense, and more. Relying on further development of SAF's proven utility will be a lower risk assumption with an earlier penetration rate to lower carbon emissions immediately.

In conclusion, we believe the economic model would be stronger with greater inclusion of low carbon liquid fuels like those produced by World Energy. Our fuels are available today and require no new engines or fleet turnover to begin reducing carbon in California.

Thank you for your consideration of our comments, and we look forward to working together in the future on this topic.

Sincerely,


Bryan Sherbacow
Chief Commercial Officer