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GrowthEnergy.org

November 5, 2020

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

RE: Comments for October 14-15 CARB Workshop on Potential Revisions to the LCFS Regulation

Dear Ms. Sahota:

Thank you for the opportunity to comment in conjunction with the recent workshop on potential revisions to the state's Low Carbon Fuel Standard. Growth Energy is the world's largest association of biofuel producers, representing 89 U.S. plants that each year produce more than 7.5 billion gallons of renewable fuel; 96 businesses associated with the production process; and tens of thousands of biofuel supporters around the country. Together, we are working to bring better and more affordable choices at the fuel pump to consumers, improve air quality, and protect the environment for future generations. We remain committed to helping our country diversify our energy portfolio in order to grow more green energy jobs, decarbonize our nation's energy mix, sustain family farms, and drive down the costs of transportation fuels for consumers.

We sincerely appreciate the California Air Resources Board's (CARB) attention and hard work to reshape California's fuel mix to make it more sustainable. This objective is a central driver for our industry, and we look forward to continuing our work with California on our common goals as you explore revisions to the LCFS program moving ahead. Specifically, liquid fuels will continue to play an important role in the transportation sector, even as alternative technologies flourish. As such, it is imperative to look at ways to improve the availability and affordability of more environmentally sustainable fuel options that can be used in current vehicles and future vehicles.

As we have continued to advocate, a primary solution for cleaning up the liquid fuel supply is the promotion of additional use of ethanol, from starch or cellulosic sources. According to recent data from the U.S. Department of Agriculture, today's starch ethanol reduces greenhouse gas emissions (GHG) by an average of 39 percent, and with further development of cellulosic and

other technologies, biofuels are poised to do much more.<sup>1</sup> Further, higher ethanol blends can be immediately deployed in existing vehicles to achieve immediate GHG reductions, reduce harmful air toxics, and reduce consumer costs at the pump.

Already, we've seen biofuels provide the foundation for the LCFS. In fact, biofuels like ethanol have generated more than 75 percent of LCFS credits. Additionally, even with room to further improve GHG lifecycle modeling, CARB recognizes the significant improvement in ethanol's carbon intensity. In 2011, CARB reported the average carbon intensity (CI) for ethanol at 88 g/MJ. Through the first half of 2019, the average recorded CI for ethanol has decreased to 63 g/MJ, a 29 percent reduction in CI.<sup>2</sup>

Ethanol's other environmental benefits are also noteworthy. As has been researched by the University of California, Riverside and the University of Illinois at Chicago, the use of more ethanol and ethanol-blended fuel reduces air toxics such as carbon monoxide, benzene, and other harmful particulates.<sup>3</sup> To fully realize these and other important air quality benefits, there needs to be a clear policy with a firm future for the role and growth of cleaner-burning, affordable ethanol fuels.

As we have noted previously, we continue to urge CARB to further develop clear policies that recognize the realities of today's fuel market and examine how homegrown biofuels can immediately contribute to achieving GHG reductions. Today, nearly all gasoline in California - and across the U.S. - is blended with 10 percent ethanol. E15, a blend consisting of 15 percent ethanol, has been approved for use by the U.S. Environmental Protection Agency (EPA) in all passenger vehicles model year 2001 and newer, more than 95 percent of the vehicles on the road today, and is now for sale at more than 2200 locations in 30 states. California is in the process of evaluating E15 through its multi-media evaluation process. We will continue to work with CARB and the other state agencies to complete their multi-media evaluation of E15, so that it can be approved for use and made available to California drivers to further drive down GHG emissions and help the state achieve its carbon neutrality goals. To be able to gain further GHG reductions, it is critical that the multi-media working group complete its evaluation of E15 to coincide with revisions of the LCFS.

Additionally, with California's significant growth of E85 used in flex-fuel vehicles (more than 40 million gallons sold at nearly 100 locations in 2019 alone), the use of E85 will promote even greater reductions in GHG emissions and reductions of air toxics. We would encourage CARB to push for policies that continue to strongly encourage and incentivize the production and use of flex-fuel vehicles, as well as continued investment in infrastructure for the expanded use of E85 in the state.

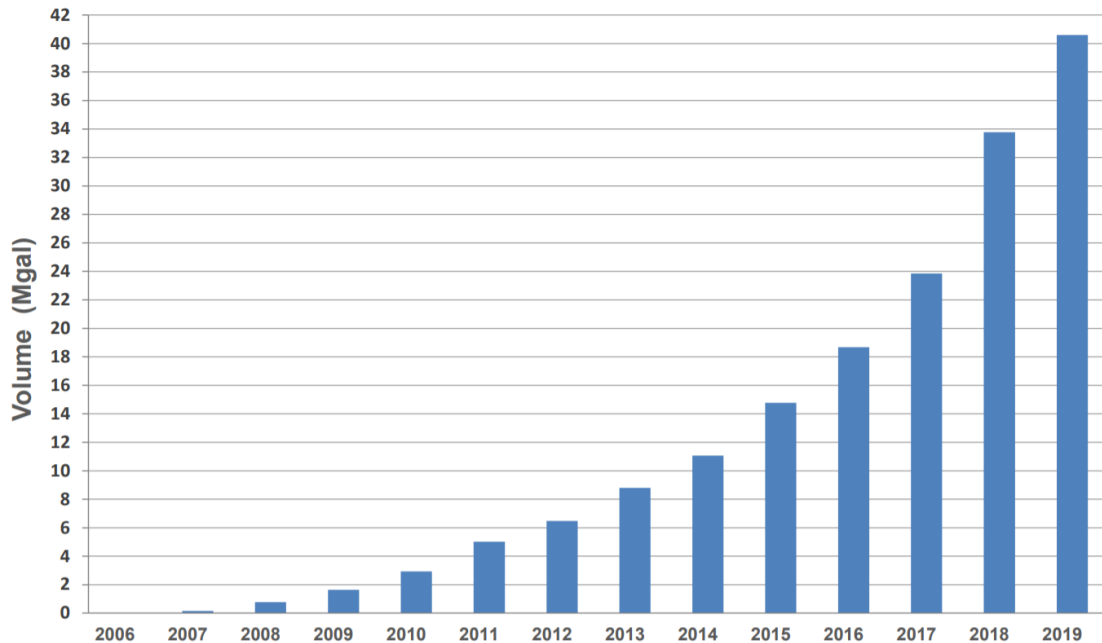
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<sup>1</sup> USDA: <https://www.usda.gov/media/press-releases/2019/04/02/usda-study-shows-significant-greenhouse-gas-benefits-ethanol>

<sup>2</sup> CARB LCFS Data: <https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities>

<sup>3</sup> University of California Riverside: <https://fixourfuel.com/wp-content/uploads/2018/04/UC-Riverside-Study.pdf>;  
University of Illinois at Chicago: <https://grains.org/wp-content/uploads/2018/11/Complete-Study-Summary.pdf>

**Annual E85 Volumes**  
(Million Gallons)



*Last Updated 2/18/2020*

This chart shows annual E85 volumes in California and is based on reported Test Program Exemption data.

With respect to some of the concepts presented at the workshop and related items, we wanted to offer our thoughts as well as our expertise as CARB explores these concepts:

**Correct the GREET Model to Reflect Updated Science on Land Use**

The latest version of CALGREET3.0 vastly overstates land use change (LUC), assigning a value of 19.8 gCO<sub>2</sub>e/MJ. A review of the more recent science over the last 5 years indicates far lower values for LUC. Under Oregon’s Clean Fuel Standard, for example, the LUC value is less than half of what is assigned by CALGREET at 7.6 gCO<sub>2</sub>e/MJ while most of the newer data indicates values closer to 4 gCO<sub>2</sub>e/MJ. The LUC value in CALGREET needs to be revised reflecting the latest science that better addresses innovation and yield in agriculture, rather than simply penalizing pathways for biofuel blends with higher LUC penalties.

**Figure 1**

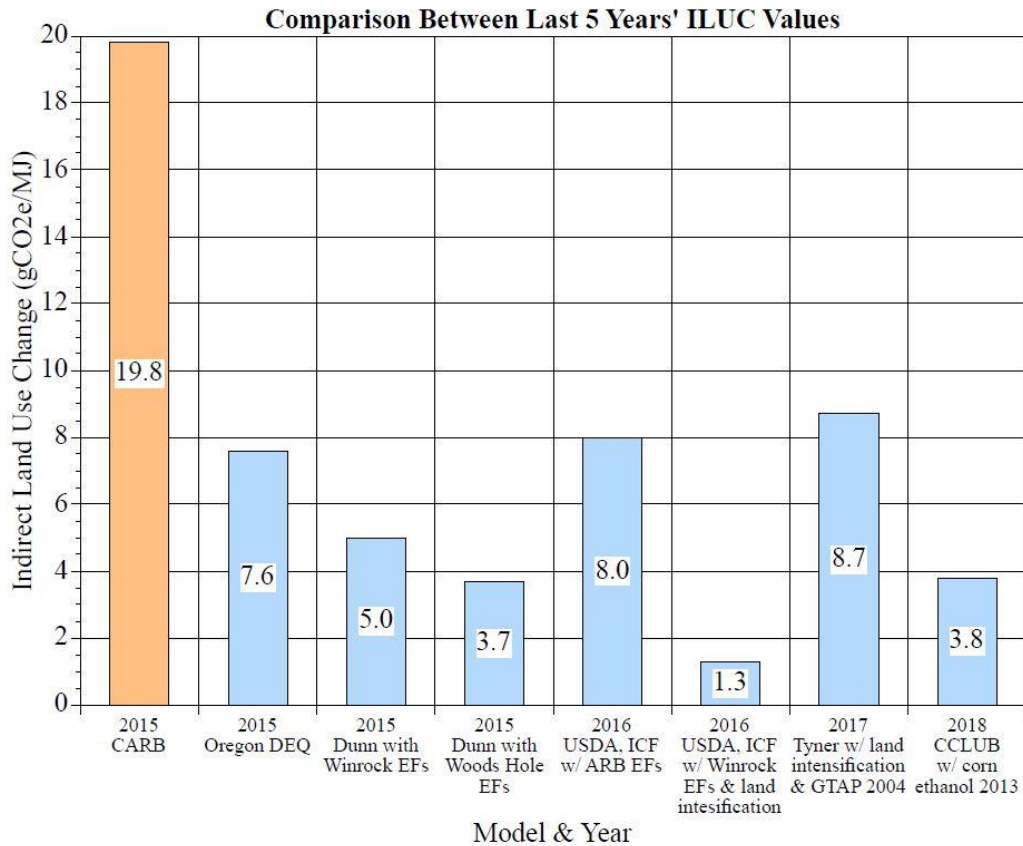


Chart from Air Improvement Resources: "Comments on Regulation IV from the Puget Sound Clean Air Agency: Clean Fuel Standard"

### **Crediting for Field-based Farm Practices**

Growth Energy strongly supports the appropriate crediting of on-the-farm field practices in the LCFS. The U.S. EPA estimates that five percent of national GHG emissions is from crop cultivation and energy, there is an opportunity for lower emissions in agriculture within the LCFS program. There has been a wealth of data including a recent study done by Argonne National Laboratory that show the possibility of a 35 percent reduction in carbon intensity through adoption of current best on-farm practices such as cover crops, strip tillage, reduced fertilizer use, and other innovations.<sup>4</sup> With CARB's verification training and protocol, capturing these on the farm benefits for biofuel pathways are now more realistic and scalable. Allowing appropriate credit will help ethanol producers continue to further innovate and lower their carbon intensity, while providing key incentives for farmers to adopt these effective conservation practices.

<sup>4</sup> Argonne National Laboratory: <https://www.anl.gov/article/argonnes-pivotal-research-discovers-practices-technologies-key-to-sustainable-farming>

### **Novel Technology Investment Credit**

During the workshop, Marathon and Virent presented a program for a novel technology investment credit for Tier 2 alternative fuels only. We are not opposed to the concept for appropriate crediting for novel technologies, however, the definition for inclusion needs to be broadened to include novel technologies adopted at all alternative fuels including Tier 1 fuels. Many of Growth Energy's members are making massive investments specifically to lower GHG emissions for the California program and would be disadvantaged by a program so narrowly tailored.

### **Carbon Capture and Sequestration**

We appreciate CARB's work on the protocol for carbon capture and sequestration and look forward to continuing our work with you on related issues as several of our members have made investments in carbon sequestration projects around the country. To that end, we would encourage CARB to further examine site-specific performance standards rather than being prescriptive on technologies and practices to ensure safe geologic storage. Additionally, while not advocating for more lenient standards, we encourage CARB to work with other states and regulating bodies to harmonize requirements so that projects aren't unfairly disqualified because of mismatched requirements in other venues.

### **Ethanol/Fuel Cell Technology**

Direct Ethanol Fuel Cells for the use in motor vehicle transportation have been in development by Nissan for some time. As recently as January of 2020, Nissan and Lawrence Berkeley National Laboratory have published research on the use of 100 percent ethanol in fuel cell technologies and innovations.<sup>5</sup> This technology not only meets zero emission vehicle requirements, but further eliminates particulates from tailpipe emissions. Using ethanol in conjunction with a fuel cell would require less infrastructure change and investment and would help the state meet its ambitious goals for climate and vehicle. As CARB considers policies on zero emission vehicles in conjunction with the LCFS, we would strongly encourage CARB to consider ways to further develop this technology for consideration.

More broadly, we look forward to working as you work through the regulatory process on revisions to the LCFS program, and ensure the role of biofuels in making California's fuel mix more sustainable and help the state achieve its progressive climate goals through the expanded use of biofuels like ethanol.

Thank you in advance for your consideration.  
Sincerely,



Chris Bliley  
Senior Vice President of Regulatory Affairs  
Growth Energy

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<sup>5</sup> Lawrence Berkeley National Laboratory: <https://eta.lbl.gov/publications/ethanol-internal-reforming-solid>