RENEWABLE FUELS ASSOCIATION

November 21, 2025

Mr. Chris Grundler
Deputy Executive Officer – Mobile Sources and Incentives
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Comments on the Drive Forward Light-Duty Vehicle Program Workshop

Dear Mr. Grundler,

The Renewable Fuels Association (RFA) appreciates the opportunity to comment on the first Drive Forward Light-Duty Vehicle Program Workshop held by the California Air Resources Board (CARB) on October 21. RFA is the leading trade association for America's ethanol industry. Our mission is to drive growth in sustainable renewable fuels and bioproducts for a better future.

CARB's number one guiding principle for the Drive Forward program, as stated in the staff presentation, is to "design stringent but flexible programs that achieve cost-effective emission reductions."[1] RFA believes that implementing a well-structured combination of requirements and incentives to grow the market for higher-level ethanol blends such as E85 in California would be among the most affordable ways to achieve significant reductions in criteria and greenhouse gas (GHG) emissions from the state's light-duty vehicle (LDV) population.

The October 21 workshop was the first step in a multi-year process to design new LDV emission requirements, and RFA looks forward to collaborating with CARB and other stakeholders to capitalize on the utilization of higher-level ethanol blends in California. Our comments summarize the areas where RFA sees significant near-term opportunities for affordable reductions in emissions.

[1] https://ww2.arb.ca.gov/sites/default/files/2025-10/2025_10_21_Workshop_Presentation_for_ADA_V5.pdf

CARB should require flex fuel vehicle (FFV) capability in all new vehicles with internal combustion engines (ICE) sold in California at the earliest practical model year.

The incremental cost to an automaker for providing FFV capability is less than $100 per vehicle, and to date there has not been any upcharge for this feature in FFV retail prices. Yet, automakers have dramatically reduced the offering of new FFVs primarily due to changes in the federal GHG emissions standards and CAFE crediting regime. As a result, the population of FFVs in California is declining.

Emissions testing of one current model year FFV conducted by Pearson Fuels, RFA, and the National Corn Growers Association at the University of California, Riverside indicated statistically significant reductions in NOx, CO_2, PM and cumulative BTEX emissions with E85 compared to E10. Emissions of CO and NMOG-NOx also trended lower with E85. Once the report is finalized, our group will share the complete results with CARB. We understand that CARB is also conducting E85 testing, and we look forward to further engagement on E85 emissions testing and analysis.

Over the last couple years, E85 has consistently sold at nearly two dollars per gallon less than regular gasoline in California. The cost of purchasing an average FFV is 10-20 percent less than purchasing an average electric car in California. Combining the lower cost of vehicle purchase with lower fuel costs further demonstrates the affordability advantages of E85 utilization in achieving the state's emission reduction goals.

E85 is now offered at nearly 600 retail stations in California, with more in development. After a meteoric rise in E85 sales over the last five years, CARB reported sales in 2024 declined slightly. A simple FFV capability requirement for new LDVs sold in California would facilitate the continued economic and environmental success of E85 utilization.

CARB should also consider establishing a California-specific F-Factor to incentivize automakers to offer FFVs in the state before an FFV sales requirement takes effect.

For flex fuel vehicles, the federal Environmental Protection Agency sets a utilization factor known as the F-Factor that "is used in EPA's light-duty vehicle greenhouse gas (GHG) program to weight the CO_2 emissions from an E85 flexible fuel vehicle (FFV) when tested with both gasoline and E85. … The F-Factor represents the E85 expected to be consumed by a model type over its life as a percentage of its total fuel consumption."[2]

[2] https://www.epa.gov/sites/default/files/2020-08/documents/f-factor-technical-memo-fy20-determination-2020-08-18.pdf

The EPA factor is currently set at 0.14, based on the assumption that on average in the United States, FFVs are fueled with E85 14 percent of the time. However, given the more significant price discount for E85 in California compared to other states and the wide availability of E85 retail stations, it is reasonable to assume that E85 utilization per vehicle in the state is materially greater than 14 percent. This is also supported by CARB data showing a rapid increase in E85 consumption over the last five years, during which the FFV population has been stable or modestly declining.

The California specific F-Factor could be utilized to give credit to automakers on fleetwide California requirements for criteria and life cycle GHG emissions, given significant reductions in both for E85 compared to regular gasoline.

The higher thermal efficiency of E85 in FFVs is an opportunity to establish a new Energy Economy Ratio (EER) for E85.

Ethanol's high octane rating of 114 and its chemical properties that result in more complete combustion than gasoline improve the engine efficiency of FFVs operating on E85. This supports an EER above the 1.0 embedded in current regulation. Combining FFV technology with higher-compression engines and plug-in hybrid technology further improves overall powertrain efficiencies. We encourage CARB to update the EER for E85 fuels used in both conventional and plug-in hybrid vehicles, so that the economic and environmental benefits of higher ethanol blends can be realized.

In conclusion, RFA appreciates the willingness of CARB staff to consider new approaches to encourage the utilization of low-carbon fuels and technology combinations that offer more affordable, flexible and immediate reductions in emissions of GHGs and criteria pollutants. We look forward to continuing engagement and data sharing on these and other topics to help California meet its environmental goals.

Sincerely,

Scott Richman
Chief Economist