

August 25, 2017

Attention: Docket No. NHTSA-2017-0069
National Highway Traffic Safety Administration
1200 New Jersey Avenue SE
Washington, DC 20590

RE: Emissions and Fuel Economy Benefit of Ethanol-based High Octane Fuels (HOF)

Dear Acting Deputy Administrator Danielson,

The Renewable Fuels Association (RFA) appreciates the opportunity to submit these comments in response to NHTSA's "Notice of Intent to Prepare an Environmental Impact Statement for Model Year 2022-2025 Corporate Average Fuel Economy Standards" (82 Fed. Reg. 34740; July 26, 2017).

RFA is the leading trade association for America's fuel ethanol industry. Its mission is to advance the development, production and use of fuel ethanol by strengthening America's ethanol industry and raising awareness about the benefits of renewable fuels. Founded in 1981, RFA serves as the premier meeting ground for industry leaders and supporters. RFA's 300-plus members are working to help America become cleaner, safer, more energy secure, and economically vibrant.

The RFA recently commissioned the attached literature survey to provide an objective review of recent technical papers and studies on the benefits that ethanol-based High Octane Fuel (HOF) would contribute to the emissions and fuel economy of vehicles designed to take full advantage of them. Research papers by automakers, universities, engineering firms and Department of Energy Laboratories were reviewed. We believe this information—particularly as it relates to carbon dioxide and criteria pollutant emissions—is relevant to NHTSA's upcoming Environmental Impact Statement.

North American automakers are working to improve fuel efficiency and reduce emissions in order to meet the 2022 – 2025 Light-duty Vehicle fuel economy and emissions standards. Automaker efforts would greatly benefit from broader availability of High Octane Fuels, which would enable them to increase engine compression ratios. Fuel octane content is, and always has been, a key limiting factor for internal combustion engine efficiency. Vehicle manufacturers have no control over market fuel properties, so absent any pending legislation or regulation compelling an increase in fuel octane, they are concentrating on hardware changes.

Consumers will see significant increases in vehicle pricing for more fuel efficient vehicles if the fuel economy increase is to come from hardware changes alone. However, increasing engine compression ratio to take advantage of High Octane Fuels is very inexpensive. In private conversations, some automakers have stated that increasing compression ratio is a zero cost option, requiring no increase in equipment cost. Consumers faced with higher priced vehicles will keep their existing vehicles longer, slowing the turnover of the North American vehicle fleet to higher efficiency vehicles.

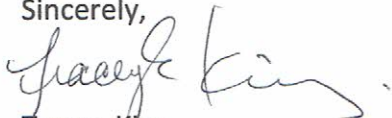
Further, the refining industry does not have the capacity to make octane in the necessary volumes to facilitate broad adoption of HOFs, and the expense would be incredible if they did. Ethanol is a high octane fuel component. HOFs can be blended today, by blending 25-30 percent ethanol with the existing gasoline blendstocks, and the resulting fuel will be less expensive than existing fuels. Refinery studies have shown that increasing the ethanol content of the finished fuel is the lowest-cost means of achieving a higher octane rating. For example, to achieve an octane rating of 98 RON (Research Octane Number) with only 10% ethanol, the additional refining cost is approximately \$0.20/gallon. However, a lower cost approach would be to achieve the 98 RON standard by adding 30% ethanol to the gasoline blendstock to make E30 at an additional refining cost of just \$0.02/gallon—ten times less costly than the E10 scenario.

An Environmental Impact Study by NHTSA that includes a detailed examination of the environmental impacts of potential future motor fuel options would prove to be of great value to EPA, NHTSA, and the California Air Resources Board (CARB) as the agencies deliberate on the future course of CAFE/GHG standards. Ethanol-based HOF will benefit the environment by reducing petroleum fuel consumption and cutting the greenhouse gas emissions associated with petroleum consumption.

The attached “Literature Review of Ethanol Use for High Octane Fuels” by Ricardo, Inc., demonstrates that use of an ethanol-based HOF in optimized IC engines would be the lowest cost means of achieving compliance with CAFE and GHG standards for MY2022-2025 and beyond; providing savings in both vehicle and fuel costs.

In closing, we strongly encourage NHTSA to consider this information as it performs the EIS for 2022-2025 CAFE standards. Please do not hesitate to contact me with any questions regarding the contents of this letter or the attached report by Ricardo, Inc.

Sincerely,



Tracey King
Technical Director