TESTIMONY OF BOB DINNEEN
PRESIDENT AND CEO, RENEWABLE FUELS ASSOCIATION

U.S. ENVIRONMENTAL PROTECTION AGENCY
PUBLIC HEARING

RE: REQUEST FOR COMMENT ON RECONSIDERATION OF THE FINAL DETERMINATION OF THE MID-TERM EVALUATION OF GREENHOUSE GAS EMISSION STANDARDS FOR MODEL YEAR 2022-2025 LIGHT-DUTY VEHICLES; REQUEST FOR COMMENT ON MODEL YEAR 2021 GREENHOUSE GAS EMISSIONS STANDARDS
(DOCKET NO. EPA-HQ-OAR-2015-0827)

WASHINGTON, D.C.
September 6, 2017

Good morning. My name is Bob Dinneen and I am President and CEO of the Renewable Fuels Association, or "RFA." RFA is the leading trade association for America's 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.

We appreciate the opportunity to share our thoughts on the Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions (CAFE/GHG) Standards for Model Years 2022-2025. If properly designed and implemented, we believe future CAFE and GHG standards can work in tandem with programs like the Renewable Fuel Standard (RFS) to advance the important policy objectives of reducing fossil fuel consumption and decreasing transportation-related emissions.

RFA has been actively involved in the public process around the Midterm Evaluation since it began under the previous administration, and we were disappointed by the premature and seemingly predestined outcome of that process. It was readily apparent that the previous administration disregarded comments from RFA and many other stakeholders—including the automakers—that encouraged EPA to evaluate engines ***and fuels*** as integrated systems when assessing the efficacy of model year 2022-2025 fuel economy and GHG standards. Indeed, the fuels that we put in our engines can have as much impact on fuel economy and GHG emissions as the engine technologies themselves. Unfortunately, EPA's Technical Assessment Report (TAR), Preliminary Determination, and original Final Determination failed to properly consider the impacts of motor fuels.

Thus, we were pleased by EPA's announcement in March that it is reconsidering the Final Determination for model years 2022-2025 and inviting stakeholders to submit relevant comments, data, and information, and to highlight any new information. In particular, RFA was encouraged by the fact that the recent Request for Comment specifically solicited comments on the *"…impact of the standards on advanced fuels technology, including but not limited to the potential for high-octane blends."* This is the first time during the Midterm Evaluation process that EPA has explicitly invited comment on the important role that fuel properties–especially octane rating—can play in facilitating compliance with the long-term fuel economy and GHG emissions standards.

In response to the draft TAR and Proposed Determination, RFA and other stakeholders submitted volumes of data, studies, technical reports, and other information to EPA related to the impact of octane rating and other fuel properties on fuel efficiency and emissions. We will be resubmitting much of that information as EPA reconsiders the Final Determination; as well as new information and data that has recently emerged, including a new exhaustive review of the literature on ethanol-based high octane fuels by Ricardo, Inc., a global automotive engineering firm.

It is broadly understood that internal combustion engines will continue to serve as the predominant propulsion technology for light duty vehicles through 2025 and beyond. Even the draft TAR prepared by the previous administration acknowledged this fact and recognized that only "very low levels" of plug-in electric vehicles will be on the market by 2025. It is also well understood that there is significant room for further technology advances and efficiency gains in internal combustion engine technology. Higher-compression ratios, turbocharging, direct injection, down-speeding and downsizing are just a few examples of low-cost emerging technologies that can lead to greater efficiency and lower emissions for internal combustion engines.

But that's where the importance of fuel properties comes into play. Most of these new and emerging internal combustion engine technologies are *enabled* by a high-octane, low-carbon fuel blend. For example, high-compression ratio technology (which EPA estimates will comprise 44% of the market by 2025) demands higher octane fuels to limit premature fuel ignition in the cylinder (otherwise known as "engine knock"). Research by the Department of Energy and others has demonstrated that ethanol is an ideal source of octane for such high-octane fuel blends. Not only does ethanol offer an extremely high octane number (109 RON, 108-119 "blending octane"), but it also features an unrivaled heat of vaporization temperature and

extremely high octane sensitivity. These attributes make ethanol a highly attractive component for the high-octane fuel blends of the future.

Clearly, pairing advanced internal combustion engine technologies like high compression ratio and turbocharging with high-octane low carbon fuels would result in far greater fuel economy and emissions benefits than previously contemplated by EPA and NHTSA. Further, research shows that using a high-octane low carbon mid-level ethanol blend in optimized engines would be the lowest cost means of achieving compliance with CAFE and GHG standards for MY2022-2025 and beyond.

The economic and environmental costs and benefits of "co-optimizing" our future engines and fuels have been extensively studied and documented by the Department of Energy, the National Research Council, individual automakers, universities like the Massachusetts Institute of Technology, and environmental groups like the Union of Concerned Scientists. Indeed, there is a growing chorus of voices calling for a transition to higher-octane fuels to enable low-cost engine technologies that will meaningfully increase fuel economy and reduce emissions in the mid-term. We urge EPA to heed this call as the Agency revisits its Final Determination.

A high-octane fuel (98-100 RON) could be produced *today* simply by blending 25-30% ethanol with existing gasoline blendstocks. However, due to the inertia of fuel and vehicle markets, this transition will not occur on its own. Action by the EPA is necessary to catalyze the development and introduction of high octane low carbon fuels into the consumer market, just as EPA action was required to eliminate lead, limit benzene, and reduce the sulfur content of our gasoline and diesel fuel.

In closing, RFA strongly encourages EPA to ensure the revised Final Determination: **1)** treats future engines and fuels as integrated systems; **2)** fully accounts for the findings of DOE's "Co-optima" research initiative; **3)** includes a robust cost-benefit analysis of various CAFE/GHG compliance pathways, including the use of high-octane low-carbon fuels in optimized engines; and **4)** lays out the regulatory roadmap to broad commercial introduction of high-octane low carbon fuels in advanced internal combustion engines.

Thank you for the opportunity to comment and I look forward to your questions.