

April 11, 2018

TO: Members, Subcommittee on Environment

FROM: Committee Majority Staff

RE: Hearing entitled “High Octane Fuels and High Efficiency Vehicles: Challenges and Opportunities.”

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## I. INTRODUCTION

The Subcommittee on Environment will hold a hearing on Friday, April 13, 2018, at 9:00 a.m. in 2123 Rayburn House Office Building. The hearing is entitled “High Octane Fuels and High Efficiency Vehicles: Challenges and Opportunities.”

## II. WITNESSES

- **Chet Thompson**, President, American Fuel and Petrochemicals Manufacturers;
- **Dan Nicholson**, Vice President, Global Propulsion Systems, General Motors, on behalf of the United States Council for Automotive Research;
- **Tim Columbus**, General Counsel, Society of Gasoline Marketers of America and National Association of Convenience Stores;
- **Paul Jeschke**, Chairman, Illinois Corn Growers Association; and
- **Emily Skor**, CEO, Growth Energy.

## III. BACKGROUND

Americans own an estimated 260 million passenger vehicles, most of which run on liquid fuels derived from petroleum and agricultural sources. Electrification and other alternatives continue to make inroads, but the internal combustion engine operating on liquid fuels will remain the most common passenger vehicle choice through 2050, according to the Energy Information Administration.<sup>1</sup> However, change is happening to those vehicles and fuels, driven in part by federal policies such as the Renewable Fuel Standard (RFS) and corporate fuel

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<sup>1</sup> Testimony of John Maples, U.S. Energy Information Administration, before the Subcommittee on Environment, March 7, 2018, at [https://www.eia.gov/pressroom/testimonies/maples\\_03072018.pdf](https://www.eia.gov/pressroom/testimonies/maples_03072018.pdf).

economy standards and overlapping greenhouse gas emissions standards (CAFE/GHG) for light duty vehicles.

The RFS requires that specified volumes of agriculturally-sourced ethanol and other biofuels be added to the nation's liquid transportation fuel supply. The program's statutory targets extend through 2022, reaching 36 billion gallons. After 2022, the Environmental Protection Agency (EPA) is granted additional flexibility to set the annual volumes for succeeding years. The National Highway Traffic Safety Administration (NHTSA) and EPA are jointly implementing Corporate Average Fuel Economy (CAFE) and Green House Gas (GHG) standards for light duty vehicles. These standards increase each year through 2025, reaching a projected 54.5 miles per gallon. Thus, both the RFS and CAFE/GHG programs will most likely continue for several years to come.

Fuels and vehicles operate as a system, and in some cases they have been regulated in a coordinated fashion.<sup>2</sup> However, the RFS and CAFE/GHG programs have, for the most part, been implemented independently of each other. As a result, opportunities for synergies may be lost.

One potential means of improving the level of mutually beneficial coordination between fuels and vehicles policies is through a transition to higher octane fuels and new vehicles whose engines are optimized to run on these fuels. Ethanol can serve as a source of additional octane, thus one of the major goals of the RFS – greater incorporation of ethanol into the transportation fuel supply – may be achieved through the use of high octane fuels. At the same time, high compression ratio engines designed to run on fuels meeting a specified high octane standard may achieve improved fuel economy and thus assist in compliance with CAFE/GHG.

Automakers, refiners, and biofuel producers have been studying the high octane concept for a number of years.<sup>3</sup> The federal government has also been involved in conducting research, including the Department of Energy's Co-Optimization of Fuels and Engines (Co-Optima) Initiative, which was discussed at this Subcommittee's March 7, 2018 hearing.<sup>4</sup>

A change of this magnitude in both fuels and vehicles would be a significant endeavor. Potentially billions of dollars in investment would have to be undertaken by refiners and automakers. Additionally, a number of likely fuel infrastructure and logistics issues would have to be addressed. This is especially true given the need to continue providing the current suite of fuels for existing vehicles throughout their useful lives while at the same time rolling out higher octane fuels for new vehicles and ensuring a smooth transition for the driving public.

Some point to the phase-in of ultra-low sulfur diesel beginning in 2006 as an example of EPA collaborating with the fuels industry and manufacturers to successfully introduce a new fuel. They see this program as a blueprint for a high octane transition.<sup>5</sup>

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<sup>2</sup> The Tier 3 Motor Vehicles Emissions and Fuel Standards is one example. See, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-control-air-pollution-motor-vehicles-tier-3>.

<sup>3</sup> See, <https://www.ncbi.nlm.nih.gov/pubmed/26237538>.

<sup>4</sup> See, <https://www.energy.gov/eere/bioenergy/co-optimization-fuels-engines>.

<sup>5</sup> See, <https://www.epa.gov/diesel-fuel-standards/diesel-fuel-standards-and-rulemakings>.

Consumer support will be critical to the success of any high octane program that transitions the nation towards new fuels and vehicles that are different than what drivers are accustomed to. It will be important to avoid unacceptable increases in the price per gallon of gasoline and in the sticker price of new vehicles. The potential risk of misfuelling will also have to be addressed, something that proved to be a problem during the transition from leaded to unleaded gasoline in the 1970s.

In addition, all of the Clean Air Act and other statutory requirements applicable to fuels and vehicles would have to be met. Thus, any shift to high octane would likely necessitate multiple rulemakings to secure approval for the new fuels and vehicles and ensure continued compliance with the law.

Nonetheless, given the growing challenges posed by the RFS and CAFE/GHG programs in the years ahead, it seems as though high octane fuels and vehicles may be an economical and technologically feasible path forward for producers and sellers of fuels and vehicles as well as the consumers who use them. The high octane option raises a number of as-yet-unanswered questions, but certainly warrants serious consideration.

#### **IV. ISSUES**

The following issues may be examined at the hearing:

- The potential for high octane fuels and vehicles designed for them to further the goals of the RFS and CAFE/GHG programs.
- The impacts of a transition to high octane fuels and vehicles on refiners, biofuel producers, automakers, and fuel retailers.
- The impacts of a transition to high octane fuels and vehicles on consumers.
- The legal and regulatory steps necessary to bring about a transition to high octane fuels and vehicles.

#### **V. STAFF CONTACTS**

If you have any questions regarding this hearing, please contact Ben Lieberman or Mary Martin of the Committee staff at (202) 225-2927.