

**Written Testimony (SUMMARY) of Steve Zimmer, United States Council for Automotive Research LLC
(USCAR), Executive Director, Before the House Committee on Energy and Commerce
Subcommittee on Environment**

Discussion Draft of "21st Century Transportation Fuels Act"
December 11, 2018

- The United States Council for Automotive Research LLC, or USCAR, is the collaborative automotive technology research organization for FCA US, Ford Motor Company and General Motors. USCAR provides a legal framework for its three members to conduct non-competitive research.
- We commend the committee and industry stakeholders involved for their collaboration in this effort.
- Setting a national minimum octane standard is a necessary step towards the continuing development of the next generation of high efficiency vehicles. We support the proposed increase to 95 Research Octane Number (RON) as the new U.S. standard for regular gasoline for vehicle model year 2023.
- Higher octane rated gasoline facilitates the development of more efficient spark ignition engines. It is estimated that an increase in RON to 95 enables an average 3% improvement in fuel economy of new vehicles. Increasing octane is beneficial for virtually all spark ignition engines.
- Establishing a new 95 RON grade is the critical piece of this proposed approach; it doesn't preclude the availability of higher RON octane grades for use in high-performance vehicles.
- We have some concerns and questions regarding several provisions: a waiver for fuels containing up to 20% ethanol; vehicle design requirements and misfueling prevention.
- We believe the discussion draft led by this Committee is the only viable near-term pathway for implementation of a 95 RON minimum and the benefits it can deliver.

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Chairman Walden, Chairman Shimkus, Ranking Member Pallone, Ranking Member Tonko, and members of the committee, my name is Steve Zimmer, Executive Director of the United States Council for Automotive Research LLC, or USCAR, the collaborative automotive technology research organization for FCA US, Ford Motor Company and General Motors. USCAR is located in Southfield, Michigan.

Founded in 1992, USCAR provides a legal framework and forum that allows its three member companies to conduct non-competitive research to accelerate development of enabling automotive technologies that address the future personal transportation needs of society. USCAR is not a manufacturer, lobbying organization or a trade association.

USCAR has a broad technical research portfolio, predominantly in eight technical areas: advanced powertrain, vehicle electrification, automotive electronics, advanced batteries, hydrogen and fuel cells, manufacturing, safety and materials. This research is accomplished by teams of experts from each member company, while leveraging the expertise of external collaborators, including suppliers, government agencies, national laboratories and universities.

USCAR research results in a shared knowledge base that enables development of new automotive technologies, offers solutions to industry-wide challenges and strengthens the competitiveness of the U.S. auto industry.

This approach supports multiple pathways to continually improve or evolve new automotive propulsion systems that meet current and future fuel efficiency, emission and safety requirements, and create innovative and environmentally responsible personal transportation solutions for customers.

Each USCAR member company has its own independent research organization and portfolio, but at USCAR, they can do more, better and faster, while achieving significant efficiencies.

These research tasks would be far more difficult, and in many instances, impossible to achieve as quickly, if at all, as individual companies. Each company then decides how to implement the resulting data as it sees fit.

I appreciate the Committee's invitation to appear before you to discuss the discussion draft of the 21st Century Transportation Fuels Act. As you know, personal mobility, and therefore the automotive industry, is changing at an unprecedented pace. The automotive industry has and will continue to deliver mobility options that balance the many technical, safety and societal requirements for the driving public. However, now more than ever, all major mobility stakeholders must better coordinate and develop integrated energy and mobility strategies together. The Committee's discussion draft is a great milestone and excellent example of such an integrated approach. Changing U.S. fuel standards, and more specifically, setting a national

minimum octane standard is a necessary step towards the continuing development of the next generation of high efficiency vehicles. We commend the Committee and industry stakeholders involved for their collaboration in this effort to bring about significant benefits to both consumers and the environment. We believe the proposed increase to 95 Research Octane Number, or RON, as the new U.S. standard for regular gasoline for model year 2023 and beyond, will be a win for consumers, the automotive industry, fuel producers, agriculture, retailers and society.

Higher octane gasoline facilitates the development of more efficient spark ignition engines by enabling an increase in compression ratio, improved combustion or a combination of both. Based on experimental data published in numerous studies conducted by industry, academia and National Labs, it is estimated that an increase to 95 RON enables an average 3% improvement in fuel economy of vehicles equipped with spark ignition engines. It is noteworthy that unlike most efficiency-enabling technologies being implemented today, increasing octane is beneficial for virtually all spark ignition engine designs, regardless of manufacturer and engine size or architecture. Considering that more than 95% of all light-duty vehicles currently sold in the U.S. are powered by a spark ignition engine (including hybrid electric and plug-in hybrid electric vehicles), increasing the minimum RON to 95 is a foundational enabler for improved vehicle efficiency and lower emissions that can have a significant impact in both the near- and long-term.

USCAR and its member companies are encouraged by the proposed 21st Century Transportation Fuels Act. The discussion draft provides an excellent starting point for national octane standard

legislation. Inter-industry and academic technical analyses have repeatedly shown that national fuel standardization is foundational for new vehicle engines to be tuned for optimal efficiency.

The implementation of 95 RON gasoline will provide commonality with European gasoline specifications. In the 1970s and 1980s, European automakers conducted joint studies with European refiners and the European Economic Community to identify an optimum minimum octane rating. 95 RON was identified as optimum and Europe uses this standard to this day. Having the same minimum octane rating in the U.S. will commonize the design of engines for automakers across regions.

While establishing a new 95 RON grade is the critical piece of this proposed approach, it doesn't preclude the availability of higher RON octane grades for use in high-performance vehicles, such as Hellcats, Corvettes and Mustangs. In Europe, 95 RON is regular, while performance grade is 98 RON or higher. Today's regular unleaded fuel will remain in the market for the existing car population. Fuel dispenser to vehicle misfueling prevention will protect future 95 RON-optimized engines from operation on current regular unleaded gasoline.

The 95 RON octane level minimum is critical to achieving greater vehicle efficiency, however there are many ways to formulate gasoline to this octane level. This discussion draft promotes market competition within a few necessary, high-level, defined vehicle design constraints. Today, USCAR members provide vehicle products to the US market with fuel ethanol capability of "Up to E15" and other products that are capable to E85, also known as Flex Fuel Vehicles.

A provision in this discussion draft calls for operation with gasoline containing “up to E20”. It is important to protect the current U.S. car fleet that is warranted to E10 or E15. Any proposed new fuel blend should allow automakers appropriate lead time, collaborating with all stakeholders to ensure the fuel blend and vehicles are introduced at the same time. Automakers document the specific ethanol capability limit in the owners’ manual for each vehicle and, with the exception of Flex Fuel Vehicles, today only five vehicle models sold in the U.S. warrant ethanol content above 15%.

Our member companies are also concerned about the discussion draft’s vehicle design requirement that states automakers shall “improve fuel economy connected to the use of gasoline that has a research octane number of 95 or higher.” Automakers are continuously improving efficiency and fuel economy to meet customer demand and regulatory requirements. This vague requirement in addition to existing regulation is therefore unnecessary. The discussion draft includes language requiring the use of a different fuel filler nozzle size to prevent misfueling. However, there are other newer approaches to misfueling prevention that should be investigated.

Industry projections suggest that vehicles with spark ignition engines, including hybrid- and plug-in hybrid electric vehicles, will remain as an important component of the vehicle fleet for some time. It should be noted that 95 RON will also benefit the many variants of future hybrid vehicles that include clean and efficient internal combustion engines for decades to come.

Ultimately, we believe the discussion draft led by this Committee is the only viable near-term pathway for implementation of a 95 RON minimum and the benefits it can deliver. USCAR members are ready to move forward and implement this initiative.

Thank you again for the opportunity to be here with you today and to provide testimony in support of this discussion draft proposing a higher-octane fuel that will enable higher efficiency vehicles.