



Testimony of Frank J. Macchiarola, Group Director, Downstream and Industry
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Environment

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Chairman Shimkus, Ranking Member Tonko and members of the Subcommittee, thank you for the opportunity to testify today. My name is Frank Macchiarola, and I am Group Director of Downstream and Industry Operations at the American Petroleum Institute (API). API is the national trade association representing all aspects of America's oil and natural gas industry. Our 620 corporate members - from large integrated oil and gas companies to small independent companies - comprise all segments of the industry. API member companies are producers, refiners, suppliers, retailers, pipeline operators and marine transporters as well as service and supply companies providing much of the nation's energy.

The subject of today's hearing "Sharing the Road: Policy Implications of Electric and Conventional Vehicles in the Years Ahead" is an important one as it raises policy questions that impact our nation's economic strength, energy security and environmental stewardship while also presenting core questions about mobility in our everyday lives.

A strong oil and gas industry is essential to the vitality of our U.S. transportation sector and to our nation's standard of living. More than 98% of vehicles on the road use oil and gas industry fuels, providing people the ability to conduct commerce, get to their jobs and go on vacations. And today, this is done with cleaner fuels that allow automobile manufacturers to build engines that reduce emissions. Furthermore, the energy renaissance in U.S. oil and gas development from unconventional shale resources has created greater energy security. And with Congress' leadership, the end to the crude oil export ban has also helped to favorably reshape America's energy security posture. Additionally, increased refining capacity has contributed to the United

States becoming a net gasoline and diesel exporter.¹ This energy renaissance has driven economic growth in areas across the country. The oil and gas industry now supports approximately 10.3 million American jobs and nearly 8 percent of the U.S. economy.

Looking ahead, recent forecasts of long-term energy trends, such as those prepared by the U.S. Energy Information Administration², ExxonMobil³ and BP⁴ indicate that despite projections of strong growth in the electric vehicle fleet, liquid fuels consumption - principally driven by abundant supplies of petroleum and natural gas - will continue to be the primary transportation energy source through the next two decades.

In order to drive our nation's economic growth as well as ensure a stable and secure energy future, we must adopt transportation and energy policies based on free-market principles that allow market participants to operate and compete on a level playing field. API opposes mandates and subsidies, as they distort the free market and ultimately increase consumer costs. Energy policies should provide for consumer choice and allow the free market to determine the mix of required energy sources. Additionally, Americans and the nation's economy depend on reliable and affordable transportation fuels that are fully compatible with engines, motor vehicles, and the fuel distribution infrastructure.

The internal combustion engine is the backbone of the U.S. transportation system and significant, systemic changes would be extraordinarily complex and must be approached with substantial caution. The fuel supply chain annually distributes more than 140 billion gallons of gasoline and 60 billion gallons of diesel, jet fuel, and home heating oil from refinery gates to consumers at retail. This fuel infrastructure and the transportation sector are highly integrated as consumers purchase roughly 16.9 to 17.8 million new light-duty vehicles, annually in the U.S.⁵ and sustain a total domestic fleet of approximately 250 million light-duty vehicles⁶, which rely on petroleum fuel. Recent data shows that the average age of the vehicle fleet is increasing which suggests that Americans are maintaining their vehicles longer⁷, underscoring the need to recognize the long-term implications of changes to transportation policy.

¹ <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MTPEXUS2&f=A>

² U.S. Energy Information Administration, [Annual Energy Outlook 2018](#)

³ ExxonMobil, [2018 Outlook for Energy](#)

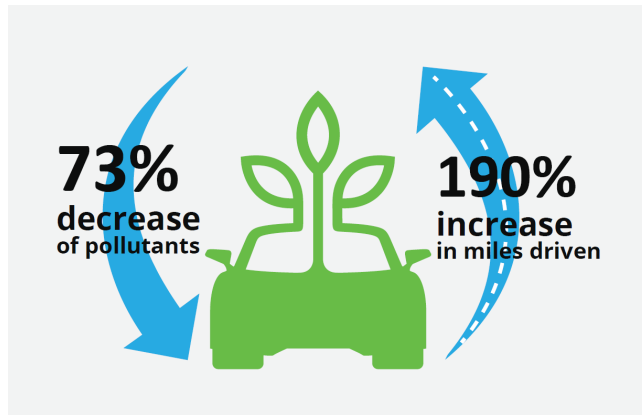
⁴ BP, [BP Energy Outlook](#)

⁵ <https://ihsmarkit.com/research-analysis/US-light-vehicle-sales-rise.html>

⁶ U.S. Department of Transportation, Federal Highway Administration, [Highway Statistics 2016](#), Table VM-1, December 2017

⁷ IHS Automotive/R. L. Polk Annual Press Releases. Release [November 22, 2016](#).

The environmental progress made in the refining of fuels and improvements in vehicles is undeniable. Cleaner fuels used in today's more efficient vehicles are helping reduce pollutants in tailpipe emissions. According to the EPA, overall new cars, trucks, SUVs and heavy-duty trucks and buses run about 99 percent cleaner than models produced in 1970.



This progress has helped reduce U.S. air pollution by 73 percent between 1970 and 2016, even as vehicle miles traveled nearly tripled and the economy grew 253 percent.⁸

As policymakers consider ways to build on our nation's success in strengthening America's energy security, API encourages development and evaluation of transportation policy on a holistic basis in which vehicles, fuels and infrastructure are treated as an integrated system. Indeed, the use of a systems approach has guided API during our more than 75-years of collaboration with the automobile industry under the auspices of the Coordinating Research Council (CRC) in order to study challenges of mutual interest related to fuels, lubricants and the equipment in which they are used.

Renewable Fuel Standard

One policy that distorts free markets, conflicts with a holistic, integrated approach and places a burden on energy consumers is the Renewable Fuel Standard (RFS). To be clear, API believes the United States needs all sources of commercially viable energy, and renewable resources will remain part of our energy mix. However, the statutory requirements of the RFS program are unworkable and unattainable. API supports significant and comprehensive reform that includes a sunset of the RFS.

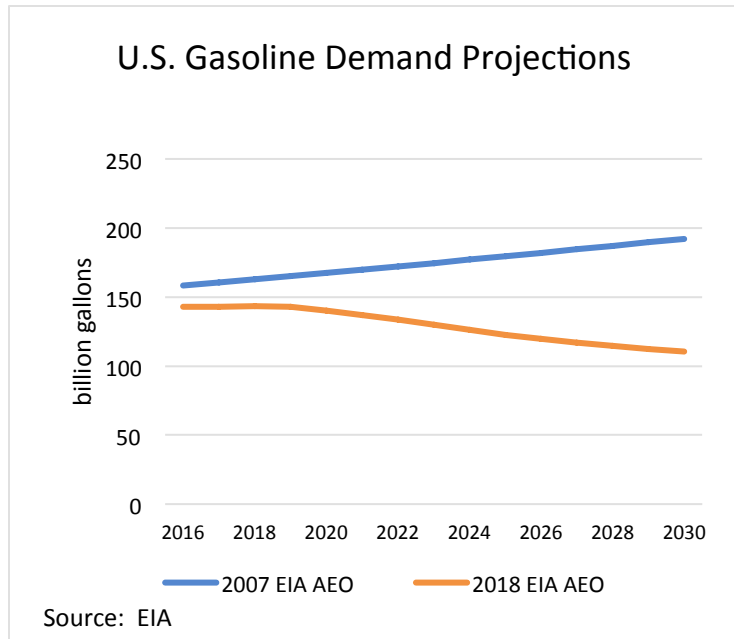
Our primary RFS concern is the ethanol blendwall, the point at which the mandated volume of ethanol exceeds the ability of the vehicle fleet and distribution infrastructure to use the fuel. The Energy Independence and Security Act of 2007⁹ (EISA) set aggressive and aspirational targets for increasing renewable fuel consumption. As the mandate increases, the volume of ethanol required exceeds 10% of the gasoline market. Ethanol blended into gasoline at up to

⁸ API [State of American Energy](#) 2018

⁹ The Energy Independence and Security Act, Public Law 110-140 (2007).

10 volume percent is approved for usage in all light duty cars and trucks and fueling infrastructure. However, approximately 75% of the light-duty vehicles currently on the road are not certified or warranted for blends above 10%.¹⁰

The energy landscape has changed significantly in the years since the RFS was enacted. Over the past decade, marketplace and technological realities have developed in ways that render RFS policies outdated. At the time that the EISA legislation was enacted, the Department of Energy (DOE) was forecasting¹¹ an increasing growth in gasoline consumption and the volumes exceeded that which could absorb 15 billion gallons of ethanol blended as E10. However, the 2007 Annual Energy Outlook



forecast substantially overestimated long-term gasoline consumption. According to the latest DOE forecast¹², gasoline consumption in 2018 will be 12% lower than 2007 projections, and by 2030 gasoline demand will be 42% lower than the projections made in 2007.

In 2007, the DOE projections also showed that domestic oil supplies would be insufficient to meet the forecasted growth in demand and would result in increasing reliance on oil imports. As a result of technological advances, such as horizontal drilling and hydraulic fracturing, crude oil and natural gas resources are over 70% higher than projections made in 2007.¹³

It was further assumed in EISA that a technological breakthrough in the production of advanced and cellulosic biofuels would provide significant reductions in greenhouse gas emissions from biofuels. These fuels have not been produced in commercial volumes, and conventional ethanol and biodiesel remain the predominant biofuels used to meet the RFS mandate.

¹⁰ <http://www.edmunds.com/ownership/howto/articles/120189/article.html>

¹¹ EIA 2007 Annual Energy Outlook.

¹² EIA 2018 Annual Energy Outlook

¹³ API analysis of EIA data: DOE/EIA-0554(2007) released April 2008 and <https://www.eia.gov/outlooks/aeo/assumptions/pdf/oilgas.pdf>

Despite the outdated and invalid assumptions made at the inception of the program, the RFS continues to be administered in a manner that pushes the limits of the ethanol blendwall to maximize renewable fuel volumes in the transportation fuel supply. Because of incompatibility concerns with vehicle and distribution infrastructure, and a lack of consumer demand, higher ethanol blends like E15 and E85 are not solutions to the ethanol blendwall problem. NERA Economic Consulting analyzed the RFS in 2015¹⁴ and determined that the RFS statutory targets are infeasible and, if implemented, would result in significant harm to the U.S. economy. Although the blendwall has been a binding constraint on the fuel supply system, severe negative economic consequences have been mostly averted in the short term by compliance flexibilities of the program. Namely, EPA has used its waiver authority on an annual basis. Additionally, on an aggregated basis, obligated parties accumulated carryover credits (RINs)¹⁵ early in the program when required volumes were below the blendwall constraint. These compliance mechanisms serve to further the implementation of the RFS program, but more importantly they demonstrate that the program is unworkable and needs significant reform.

API appreciates the leadership of the Chairman and members of this Subcommittee in your approach to comprehensive fuels reform responsive to the concerns of market participants, especially the American consumer. In order to achieve the goals we have stated for an effective fuels policy, any comprehensive policy measure must include a sunset of the RFS program. Additionally, we believe that the prospect of a higher-octane gasoline is an idea worthy of additional study to analyze the potential costs and benefits to all market participants throughout the value chain, including the consuming public, as well as to our nation's energy security and environment.

Electric Vehicles

Some commentators refer to electric vehicles (EVs) as "zero-emission" vehicles. EVs may better be described as "emissions displacement" vehicles. The "zero-emission" classification fails to acknowledge the energy required in manufacturing the vehicle and battery systems, the energy sources used to generate the electricity required to charge the vehicle, and the environmental cost of battery disposal.

¹⁴ NERA Economic Consulting; "Economic Impacts Resulting from Implementation of RFS2 Program"; July, 2015.

¹⁵ Renewable Identification Numbers (RINs) are generated by biofuel producers and used by refiners and importers of transportation fuels to demonstrate compliance with the RFS program.

Electric vehicles show some promise in certain applications, and many forecasters expect market-driven growth in their production and use. While we support market-driven activity, API opposes government intervention in the markets to pick winners and losers because it creates an un-level playing field. Tax transfers from one sector should not be used to subsidize another, and tax policy should provide consistent treatment among industries. Subsidies such as federal and state income tax credits for the purchase of electric vehicles and tax credits for the installation of electric charging infrastructure distort free markets and are detrimental to taxpayers and the consuming public. In fact, electric vehicle incentive programs have had a “reverse Robin Hood” effect. According to a study done by University of California Berkeley faculty, clean energy “tax expenditures have gone predominantly to higher-income Americans... The most extreme is the program aimed at electric vehicles, where we find that the top income quintile has received about 90% of all credits.”¹⁶

Ambitious federal and state emissions and fuel economy requirements are encouraging automobile manufacturers to produce EVs in greater numbers. Sales forecasts of battery electric vehicles in the United States vary widely, ranging from 10% to about 54% by 2040¹⁷, up from approximately 1% of the market currently. The ultimate trajectory and level of market penetration achieved by electric vehicles should not rely on government interference in the free market. Rather, it should depend on continued (a) reductions in battery costs (which may require technology breakthroughs), (b) improvements in electric vehicle driving range, (c) expansion of the electric vehicle charging infrastructure and, ultimately consumer acceptance. The trajectory of EV adoption also depends, heavily, on the assumption that future improvements in EV technology will not be overtaken by unforeseen breakthroughs that may impact the relative energy and environmental performance of existing conventional automotive technologies.

We encourage the adoption of policies that strengthen our energy security, improve our standard of living and protect our environment. In creating transportation policy, Congress should acknowledge that consumers are purchasing vehicles today, and those vehicles are staying on the road longer¹⁸ and going further on a gallon of fuel. New transportation policies that incentivize shifts in consumer behavior should be considered with caution as they may impose undue costs on consumers with diminishing environmental benefits and unintended

¹⁶ “The Distributional Effects of U.S. Clean Energy Tax Credits,” by Severin Borenstein (UC Berkeley), and Lucas W. Davis (UC Berkeley), National Bureau of Economic Research, Cambridge, Massachusetts, July 2015

¹⁷ Bloomberg New Energy Finance, 6 July 2017, “Electric Vehicles to Accelerate to 54% If New Car Sales by 2040”

¹⁸ IHS Automotive/R. L. Polk Annual Press Releases. Release [November 22, 2016](#).



consequences. As noted earlier, a strong oil and gas industry is essential to the vitality of America's transportation sector and our standard of living. The oil and gas industry is committed to providing for our nation's essential energy needs in the years ahead and we look forward to working with Congress on solutions that support the American consumer and strengthen our nation's economy, environment and energy security.

I thank the Chairman, Ranking Member and members of the Subcommittee for the opportunity to testify today and I look forward to your questions.