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# Fuels Institute

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April 5, 2018

The Honorable John Shimkus  
Chairman  
Energy and Commerce Committee,  
Subcommittee on Environment  
2125 Rayburn House Office Building  
Washington, DC 20515

The Honorable Paul Tonko  
Ranking Member  
Energy and Commerce Committee,  
Subcommittee on Environment  
2322A Rayburn House Office Building  
Washington, DC 20515

Dear Chairman Shimkus and Representative Tonko,

Thank you for inviting me to testify at the March 7, 2018, hearing “The Future of Transportation Fuels and Vehicles.” I hope the hearing met your expectations and provided value to you and your colleagues on the Subcommittee.

Regarding the written questions presented to me following the hearing, please find my responses on the following pages. If there are any additional questions, I would be happy to respond.

Sincerely,

A large black rectangular redaction box covering the signature of John Eichberger.

John Eichberger  
Executive Director

Two black rectangular redaction boxes covering contact information, likely a phone number and an email address.

Attachment.

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**Response of John Eichberger to Written Questions  
Submitted by Members of the Subcommittee on Environment**

**Questions Submitted by The Honorable Joe Barton**

- What types of financial incentives currently exist through the federal government and private sector, to encourage this type of innovation?
- How would such a company present these types of ideas to the federal government for consideration?

I am not personally familiar with all programs that may exist to encourage innovation in the transportation energy sector, but I know that there are several that serve that purpose. Among those with which I am familiar are the alternative fuel vehicle and infrastructure tax credits. These programs provide tax incentives to encourage the availability of alternative fuel vehicles and the availability of alternative transportation energy to consumers, including electricity, natural gas, propane and biofuels.

From my experience with the retail fueling industry, such incentives can be helpful to encourage a company that is already considering such products to make the final decision to invest – in other words, by defraying the cost of investment, a tax credit can help a retailer get off the fence and move forward with an alternative fuel. However, it is less often that such incentives influence a company to make an investment if it was not already considering doing so.

Among other initiatives with which I am familiar that encourage innovation in the transportation energy sector are those being operated by the Department of Energy's national laboratories. For example, as my fellow witness John Farrell from the National Renewable Energy Laboratory shared during the hearing, the Co-Optimization of Fuels and Engines program is conducting early stage research to determine the technical feasibility of certain fuel components to facilitate more efficient engine performance. This type of research is often not initiated by industry, but can form the scientific foundations for advancements in market-ready fuels and engines that will ultimately benefit the consumer. In addition, the Department of Energy's Energy Efficient Mobility Systems program is researching how new mobility technologies might transform the transportation sector.

These projects feature collaborative research among the national laboratories and will deliver to the market information and analysis of potential innovations that might then be developed for commercial purposes. In this way, the federal government is supporting early stage research and technical analysis and thereby encouraging innovation throughout the transportation sector.

For companies who are developing innovative solutions for fuels and vehicles, there are a variety of opportunities to showcase such ideas to the federal government. Once again, the Department of Energy operates both the Clean Cities Program and the ARPA-E program. By contacting these programs, innovative companies might find opportunities to showcase their concepts and seek support for further research and development. This is an appropriate role for the federal government – to facilitate early stage research and analysis and to provide forums through which innovation can be introduced to a broader audience.

**Question Submitted by The Honorable Richard Hudson**

- Could you share with us your perspective on what could cause such a shift in consumer preferences? How can the federal government then be better prepared to adapt with changing technology so it does not create an unnecessary gap between policy and technology?

To identify what factors might compel consumers to change behavior, it is helpful to look at past experience. The smart phone debuted in the United States in 2007 and, slightly more than one decade later, they are nearly ubiquitous. Why? The smart phone has delivered an immediate, compelling value to the consumer. It has enabled advanced communications and commercial transactions to occur from most any location, freeing the user from the bounds of their desk, personal computer and landline telephone. From this technology has emerged an app-enabled economy that has transformed not only telecommunications and commerce, but ushered in a new era of social interaction, facilitated on-demand mobility, and a variety of other services that were not previously possible or even contemplated. The smart phone user can experience immediate life-style benefits by availing themselves of these services.

Disruptive transformation in the transportation sector would have to deliver similar, compelling value. Simply replacing an internal combustion engine with an electric battery to move a vehicle from point A to point B is unlikely to be deemed an overwhelming compelling value by most consumers. As these vehicles become more affordable, deliver extended range and reduced recharging time, they will become a more feasible and potentially desirable substitute for legacy technology, but I do not believe they will spark a disruptive transformation in a short amount of time.

Some have argued that autonomous, electric on-demand mobility services will be disruptive to the legacy system in a very short time. This is largely predicated on the assumption that such a service could be orders of magnitude less expensive than owning and operating a personal vehicle. While this economic assumption might be accurate, I am uncertain that enough consumers would abandon their traditional method of transportation to generate a transformative change in a short amount of time. Personal vehicles provide a certain level of utility, freedom and reliability that on-demand services may not seem to provide for all consumers. Consequently, I believe that adoption of such services will begin within certain

markets and be more prevalent among certain consumer demographics, but will not be uniform or available in all markets.

As transportation/mobility options mature, what might attract consumers en masse will be options that can affirmatively answer questions such as:

- Is this option less expensive than alternatives and, if so, how much less expensive?
- How much time will this new option save me?
- Can I access this option as conveniently as I can get into my own vehicle?
- How flexible is the option and will it accommodate my hectic schedule and complex needs?
- Am I restricted from accessing certain areas if I am not using this new option?
- What are the opportunity costs/benefits from using this new option?
- How will this option enable more efficient execution of other activities in my life?

As new options begin to satisfy questions such as these, they will begin to gain market share – potentially at a rapid pace. But I am doubtful that American consumers will replace their current mode of transportation with a new option as quickly as they adopted the smart phone.

Consequently, as the market evolves and begins to incorporate new options, the federal government has time to evaluate the relationship between technology and policy and make appropriate adjustments. I believe it is incumbent upon the government to not stand in the way of technological innovation within the transportation/mobility sector, but also to ensure the safety and security of the people. This is a careful balance that requires constant attention.

The Congress and Administration should evaluate the manner in which they are authorized to engage with industry in the early stages of innovation. I believe that the only way the government can efficiently avoid gaps between policy and technology is to know about emerging technologies in the early stages, and that requires creating opportunities for government officials to engage with industry on a regular and non-threatening basis. While the eventual deployment of technology within the transportation sector is likely to take time, the development of technological options will proceed quickly. Policies are by nature static and should be routinely reviewed for relevancy and overall impact on market development. If there are barriers which prevent the government from developing a better understanding of what is emerging, then these barriers should be reconsidered and opportunities opened.

As technologies become “road-ready,” at that point government policies balancing innovation with safety and security of the people come into play. Each innovation is different and one-size-fits-all policies are not uniformly applicable. It is important that policies be crafted to ensure clarity of purpose but incorporate sufficient flexibility to ensure the government does not become a roadblock to consumer-benefiting technologies.