**Comments for Non-Traditional and Emerging Transportation Technology Council**
**Docket No. DOT-OST-2019-0165**

**January 10, 2020**

The Fuel Cell and Hydrogen Energy Association (FCHEA) appreciates the opportunity to provide comment on Docket No. DOT-OST-2019-0165; feedback to the Department of Transportation's Non-Traditional and Emerging Transportation Technology Council (NETT Council). FCHEA represents leading companies and organizations that are advancing innovative, clean, safe, and reliable energy technologies. FCHEA's membership includes the full global supply chain of the fuel cell and hydrogen technology landscape.

FCHEA supports the goals of NETT to advance non-traditional and emerging transportation technologies. We believe that fuel cell and hydrogen technologies will play a critical role in transportation technologies in the United States in the coming years.

**1. Are there existing Federal transportation laws or regulations that inhibit innovation by creating barriers to testing, certifying or verifying compliance, or operating non-traditional and emerging transportation technologies? Please provide specific examples, explain why the requirement imposes a barrier, and identify the specific law or regulation that you believe should be changed and describe how it should be changed. Please identify all associated regulations that should be changed, including specific citations to the Code of Federal Regulations and explain the need for the change.**

FCHEA is aware that current regulations make the certification of composite tube trailers designed for transporting hydrogen difficult. As hydrogen refueling infrastructure is developing, we anticipate an increased need for hydrogen delivered to the stations.

Another regulation requires replacement H2 cylinders be shipped inert, i.e. containing zero hydrogen. This results in the tanks requiring a time consuming fill/purge process at the dealer to remove the nitrogen and replace it with hydrogen. This solution is not practical.

Current regulations for transporting vehicle hydrogen tanks following an accident also require inerting, which may not be practical at or near the crash site.

**6. Does the current landscape of State/local/Tribal regulation for non-traditional and emerging transportation technologies hinder or support innovation? More specifically:**

a. **What laws or regulations do State, local, or Tribal governments rely upon, other than Federal transportation laws and regulations, to regulate the safe design, construction, and operational safety of non-traditional or emerging transportation technologies (e.g., hyperloop and non-traditional tunneling)? In what ways do these laws or regulations hinder or support innovation? (Please be specific in your response.)**

Existing regulations for tunnels throughout the United States do not yet address passenger vehicles powered by hydrogen energy. Fuel cell vehicles (FCVs) powered by hydrogen are designed and manufactured by leading automotive suppliers, and such vehicles meet the Department of Transportation Federal Motor Vehicle Safety Standard (FMVSS) requirements. In addition, the United Nations Economic Commission for Europe (UN ECE)

has developed a Global Technical Regulation (GTR) for these vehicles to ensure safety. FCHEA would welcome some cooperative information-sharing to facilitate updating tunnel regulations to allow FCVs.

**10. Technology Companies/Innovators: What standards or code of conduct are relevant to ensuring a balance between supporting innovation and ensuring the safety of transportation infrastructure and the traveling public?**

FCHEA supports performance-based standards, which by their nature, ensure safety while supporting innovation. In the case of standards for vehicles or the related infrastructure utilizing hydrogen energy technologies, a number of codes, standards, and regulations already exist on a national, as well as an international level, promulgated by leading standards bodies such as the Society of Automotive Engineers (SAE), the CSA Group, the National Fire Protection Association, and many others. These can be found in our database at www.fuelcellstandards.com.

**11. Technology Companies/Innovators: What actions can the NETT Council take to support your work, while maintaining its safety focus?**

**a. At what point in the development of the technology or operation would it be ideal to interface with the NETT Council?**

FCHEA is interested in interfacing as soon as possible on such topics as FCVs which are already being deployed, as well as hydrogen fueling stations, which are in various stages of deployment across the country and will require hydrogen fuel delivery.

**b. Considering the resource constraints and the potential cross modal nature of non-traditional and emerging transportation technologies, would an on-going relationship with the NETT Council during the development and construction of your project be helpful to assess potential safety risks and unintended consequences be helpful? If so, how often should engagements occur?**

FCHEA suggests an initial broad-based discussion with the NETT Council to discuss the state of the industry, with potential follow-up engagements on specific topics as needed.

**12. Local, State, Tribal, and Other Public Entities: What support should the NETT Council consider providing when non-traditional/emerging transportation technology companies propose a non-traditional or emerging transportation technology or system in your jurisdiction?**

**a. In what way could Federal action help maintain the overall safety of the design, construction, and operation system? What aspects do you believe are best addressed by State, local, and Tribal entities? Please provide specific examples to support your comment.**

Guidance documents on specific technologies might facilitate a common understanding, which could facilitate decision-making at a local, State, Tribal, or other public level. For example, the issue of FCVs in tunnels, the issue of composite tube trailers for serving hydrogen fueling stations, etc., could be advanced through facilitation of dialogue, facts, and mitigation measures at a Federal level.

**b. In what way could Federal actions assist you in overseeing any risks (safety or other) and unintended consequences that are local in nature? In what way could they interfere with your oversight and enforcement authorities? Please provide specific examples to support your comment.**

Safety concerns in tunnels, for example, fall under the purview of the authority having jurisdiction. Specific circumstances, such as age, materials, design, etc., must be taken into account in the decision-making for updating regulations for tunnels. Information exchange, guidance, etc., could be facilitated at a Federal level.

**Benefits and Recommendations**

Fuel cell vehicles (FCVs) are electric vehicles. Rather than storing electricity from the grid in a battery, FCVs combine oxygen from the air with hydrogen fuel to generate electricity on board the vehicle to power an electric motor, with the only tailpipe emission being water vapor. Fuel cells are extremely efficient as they generate electricity through an electrochemical reaction, not combustion. FCVs are the only zero-emissions vehicle (ZEV) platform now, or for the foreseeable future, that replicates today's driver's experience of being able to travel 300-400 miles in between fills, and refuel in 3-5 minutes. In other words, fuel cell vehicles offer drivers the option of zero emissions with zero compromise.

While FCVs are an emerging technology, they have already gained much ground. In just the few short years of availability, today there are 8,000 light-duty FCVs operating in California offered by Toyota, Honda, and Hyundai, with more automakers planning to enter the marketplace in the near-future. Across the country, fuel cells are being used in more than 28,000 forklifts, dozens of buses, and several demonstrations of Class 8 trucks. Due to the scalability of fuel cells, several hard-to-decarbonize markets such as medium- and heavy-duty vehicles, aviation, and maritime applications are looking to fuel cells as a zero-emission alternative for their power needs. To enable deep-decarbonization and emission reduction across the entire transportation sector, it is critical that hydrogen and fuel cells are supported at all levels of government.

Operating an FCV is no different than gasoline vehicles consumers use today, beyond the increased performance and maintenance benefits of electric drive. When fuel is running low, you simply pull into a station with a hydrogen dispenser, swipe a credit card, insert the nozzle, and in a few short minutes, you are back on the road. By giving the option to maintain driver's habits of returning to a central station whenever they need more fuel, FCVs can provide a zero-emission option for consumers that live in multi-family dwellings, have off-street parking, or are without access to recharge their vehicle at work or home. Therefore, fuel cells can expand access to zero-emission electric vehicles to new markets and customers, particularly those who would traditionally not have access to electrified vehicles.

Hydrogen is an environmentally-friendly fuel. Hydrogen-powered fuel cell vehicles generate zero carbon, NOx, SOx, or particulate matter emissions from the tailpipe. On a well-to-wheels basis, no matter the source of hydrogen, FCVs dramatically reduce emissions compared to combustion vehicles and are on par in reductions with battery electric vehicles (BEVs). When hydrogen is generated from renewable or zero-carbon sources – such as wind, solar, biomethane, or natural gas with carbon capture and sequestration – carbon emissions are nearly eliminated.

Just as battery electric vehicles are getting cleaner as the utility grid adopts more renewable power generation, so too is hydrogen production. In fact, in September 2018 the Hydrogen Council, a global CEO coalition of fuel cell and hydrogen companies, announced an ambitious goal of fully decarbonizing hydrogen fuel for transport by 2030.[1] This goal would set the stage for a significant environmental impact and put hydrogen-fueled transport on a much faster path to zero-carbon intensity than the one charted by utilities for the grid. However, accomplishing this task will require the collaboration of local and state governments. By supporting FCV deployment, the United States can significantly reduce the transportation sector's environmental impact and reduce air pollution.

[1] http://hydrogencouncil.com/our-2030-goal/

Hydrogen systems are as safe, if not safer, than conventional fuel systems, including gasoline and natural gas. Hydrogen has been safely used by many different industrial sectors for more than fifty years. In fact, ten million metric tons of hydrogen is produced every year for use in a range of industrial applications such as chemical, refining, electronics, and pharmaceuticals. In the transportation section, hydrogen is used safely each day as fuel for cars in California, as well as trucks, buses, and forklifts nationwide. Furthermore, FCVs meet the strictest safety and quality standards set by both the United States National Highway and Transpiration Administration (NHTSA) and the United Nations Global Technical Regulations (GTR).

As DOT looks to incorporate non-traditional technologies, we ask that any program be inclusive of all ZEVs, including FCVs, providing a level playing field and parity for all zero-emission technologies. In addition, for any DOT program that may fund ZEV infrastructure, we encourage the DOT to set aside a portion of that funding specifically for development of hydrogen fueling infrastructure. Implementing a ZEV technology neutral approach will be simple, fair, and allow consumers more choice.

Due to their low emissions and high efficiency fuel cells should play a key role in America's plan to reduce emissions and support non-traditional transportation technologies.

As planning for America's transportation energy future continues, agencies and policymakers have ready access to hydrogen network planning expertise. Station developers with real world experience gained from planning and building California's hydrogen station network, as well as the early network underway in the Northeast, are available to share best practices. Developers have significant expertise regarding fuel cell application and infrastructure design, planning, and implementation. FCHEA member companies look forward to collaborating with stakeholders as projects are designed, planned, and implemented. The U.S. Department of Energy-affiliated research laboratories provide sophisticated technical services, such as network planning tools that model preferred station locations, hydrogen production, and fuel cell vehicle costs.

FCHEA and its members are available as a resource to DOT officials and NETT representatives. We stand ready to provide information to assist in the incorporation of this valuable technology. Should you have any questions or wish to discuss further, I can be reached at any time by email at mmarkowitz@fchea.org or by phone at 202-261-1331.