

2023 Key considerations for electric vehicles and hydrogen fuel cell vehicles

By Pamela T. Wu, Esq., and Levi McAllister, Esq., Morgan Lewis

MARCH 2, 2023

Fully electric vehicles (EVs) and hydrogen fuel cell vehicles will be key players in the nationwide and industrywide effort to cut emissions. In the transportation sector, light-duty vehicles and medium- and heavy-duty vehicles hold the top two percentage shares of current transportation emissions of 49% and 21%, respectively.

Electrification efforts of the US transportation sector are strong and growing. More than 800,000 EVs were sold in the United States in 2022, which was nearly 6.0% of all vehicles sold.

The Biden administration has established ambitious greenhouse gas emissions-reduction goals for both types of transportation, including deploying 500,000 EV chargers and increasing the percentage of new medium- and heavy-duty zero-emissions vehicles sold to 30% by 2030 and 100% by 2040. Achieving these emissions-reduction goals, however, will require those in the industry to consider and address a variety of commercial and legal issues.

The US national blueprint for transportation decarbonization

At the start of the year, the Biden administration laid out its strategy for decarbonizing the transportation sector to achieve the economywide 2030 and 2050 emissions-reduction goals in its US National Blueprint for Transportation Decarbonization (the Blueprint). Developed by the US Department of Energy (DOE), Department of Transportation, Environmental Protection Agency, and Department of Housing and Urban Development, the Blueprint focuses on the major transportation modes, identifies specific decarbonization opportunities and challenges for each, and discusses the role of clean technologies.

The Blueprint identifies three key strategies, including transitioning to clean options by deploying zero-emission vehicles and fuels for all passenger and freight travel modes. This will require the

adoption of highly efficient zero-emission EVs, hydrogen fuel cell vehicles, and sustainable fuels produced from biomass and waste feedstocks to decarbonize hard-to-electrify forms of transportation such as air transport and long-haul shipping. It will also require continued development of EV charging and clean-fuel infrastructure, as well as continued development and innovation of clean-energy technologies.

EVs

Electrification efforts of the US transportation sector are strong and growing. More than 800,000 EVs were sold in the United States in 2022, which was nearly 6.0% of all vehicles sold. In comparison to recent years, EV sales in 2022 affirm that policy efforts to encourage EV deployment are taking root and consumer appetite for electrified transportation is growing. However, to move from where we are currently with respect to EV deployment to where policymakers want to be, certain key issues must be confronted. Below are three such issues.

First, continued emphasis and aggressive pursuit of public EV charging-station development will remain a key issue in 2023 and beyond. EV batteries have a finite range of travel before they need to be recharged, either at home or at a public charging station. Absent a robust network of fast public charging opportunities, consumer range anxiety about the recharging need will persist, which will hamper EV sales to certain market segments (namely, those that need transport for long distances and/or in underserved areas). Range anxiety is the fear that an EV won't have a charge sufficient to complete its trip and is still perceived to be one of the greatest barriers preventing fleets from going electric.

Simply put, the United States currently lacks the requisite volume of public chargers to alleviate consumer range anxiety. What's more, recent studies reveal that a material percentage of existing chargers suffer from outages or maintenance issues that render them inoperable.

Thus, it is critically important that more chargers be developed and put into operation and that those chargers offer reliable uptime. To accomplish these two items, charger-station development must occur in a manner that is commercially successful — for the charge point operator (CPO) and the site host alike. A commercially successful development opportunity requires a circumstance

whereby the CPO can have an advantageous revenue stream as well as minimize risk exposure arising from the siting and operation of the stations themselves.

This raises two issues: (a) the best way in which to monetize charging infrastructure; and (b) the best type of contractual protections in infrastructure licensing or site-host agreements. With respect to (a), innovation in utility rate design and demand charge application is likely to remain a relevant point of discussion and/or obstacle through 2023. With respect to (b), CPOs and site hosts should take care to carefully consider various matters of importance to charging infrastructure, such as (i) exclusivity in installation; (ii) operations and maintenance responsibility; (iii) revenue sharing and leasing payments; (iv) ownership of property after termination; (v) indemnification and insurance; and (vi) utility easements and site access.

Second, charging-station development is not the only issue to be tackled in 2023 with regard to EV deployment. Market participants must continue to grapple with issues relating to the battery component and critical supply chain. This is particularly important given the Inflation Reduction Act's imposition of domestic content requirements for batteries and, in turn, vehicle eligibility for a \$7,500 tax credit.

Third, a key issue in 2023 is whether undeveloped cybersecurity and data protection standards and requirements applicable to EV infrastructure may create vulnerabilities for the safety of consumer data and opportunities for hackers to exploit as an entry point in US electric grid disruption attempts. EV sector participants should carefully monitor any developments relating to the regulation of data privacy or cybersecurity imposed on CPOs or the regulation of the same imposed on interconnected utilities or EV manufacturers.

Hydrogen fuel cell vehicles

Hydrogen fuel cell vehicles can serve as a complement to EVs for transportation modes that require longer ranges and faster refueling times and as an important player in decarbonizing long-haul, heavy-duty trucks and other forms of transportation. Scaling hydrogen fuel cell vehicles will require continued investment, research, development, and demonstration of hydrogen fuel cell technologies and the continued development of a connective hydrogen infrastructure in the United States.

The Infrastructure Investment and Jobs Act, also known as the Bipartisan Infrastructure Law, made significant investments in the research, development and demonstration (RD&D) of transportation technologies, including hydrogen fuel cell technologies, infrastructure deployment, and supply chains for materials and minerals, and the Inflation Reduction Act has made available significant tax credits for developers of hydrogen facilities.

The availability of infrastructure and means to safely and efficiently transport hydrogen are among the key factors that will need to be addressed in order to successfully scale hydrogen fuel cell vehicles. Although hundreds of miles of hydrogen pipelines currently exist, additional connective infrastructure that is capable of moving

hydrogen from the production facility to the end user as well as hydrogen storage facilities are still under active development.

This development is being spurred in large part by the DOE's \$7 billion program to establish regional clean hydrogen hubs across the United States. These hubs will form the foundation of a national clean hydrogen network of hydrogen producers, consumers, and local connective infrastructure and will help facilitate the delivery, storage, and end use of hydrogen (for example, in hydrogen fuel cells).

The cost, durability, and comparability of hydrogen fuel cell technologies will also need to be addressed. The DOE has announced several funding opportunities that are targeted at these priorities. These opportunities include the recent earmarking of \$47 million to support the RD&D of hydrogen and fuel cell technologies, with a focus on enabling the use of clean hydrogen in medium- and heavy-duty vehicles and other heavy-duty transportation applications.

The availability of infrastructure and means to safely and efficiently transport hydrogen are among the key factors that will need to be addressed in order to successfully scale hydrogen fuel cell vehicles.

Although hydrogen fuel cell systems can offer long driving ranges, short refueling times, and high payload capacities, they require significant quantities of hydrogen. The development of liquid hydrogen (LH2) storage vessels and the required balance-of-plant hardware is a topic of interest because it can enable low-cost, energy-dense LH2 storage onboard medium- and heavy-duty transportation applications.

Another topic of interest identified in the funding opportunity is the development of LH2 transfer and vehicular fueling technologies and approaches to enable high-flow LH2 transfer and fueling for medium- and heavy-duty transportation application. Large-scale LH2 fueling and transfer operations for medium- and heavy-duty end users require the development of advanced LH2 components, systems, and technologies that address the need for fueling times that are comparable to those of liquid fuels as well as hydrogen losses, compatibility of materials, and safety concerns from LH2 fueling and transfer operations.

The DOE is expected to continue to issue funding opportunities to further the development of hydrogen infrastructure and technologies. These anticipated opportunities include \$500 million for the development of manufacturing and recycling of clean hydrogen technologies and \$1 billion for electrolyzer development, which is technology that uses electricity to break water into hydrogen and oxygen and is a key component in clean hydrogen production.

While the development of regional clean hydrogen hubs and hydrogen fuel cell technologies continues, the industry will also need to determine how to best utilize and incorporate existing infrastructure for hydrogen use. For example, interstate natural gas pipelines will need to determine whether and the extent to which hydrogen can be blended into and transported on their systems. The industry will need to determine how to best integrate hydrogen with and into existing infrastructure, as that can be relied upon, at least in part, to move hydrogen from the hydrogen producer to the hydrogen end user.

There is also a need for clarity as to which agencies will exercise jurisdiction over infrastructure that is used to produce, transport, and store hydrogen. For example, the Federal Energy Regulatory

Commission (FERC) may assert jurisdiction over pipelines that transport hydrogen and hydrogen storage facilities. If it does, it is unclear under which framework (i.e., the Natural Gas Act or Interstate Commerce Act) the FERC will regulate such facilities.

Separately, the Surface Transportation Board has the authority to exercise economic regulation of pipelines transporting any commodity other than water, gas, and oil and therefore may assert or exercise jurisdiction over hydrogen pipelines, although it has not yet done so. Addressing these regulatory uncertainties will be critical in facilitating efforts to establish a nationwide hydrogen network and ensure the continued development of hydrogen pipelines and storage facilities.

About the authors



Pamela T. Wu (L), a partner at **Morgan Lewis**, represents companies in the energy industry in a broad range of matters involving rates, market rules and regulation, and energy commodity trading before the Federal Energy Regulatory Commission (FERC) and Commodity Futures Trading Commission (CFTC). She advises clients seeking to reduce their carbon footprint through new infrastructure assets, clean energy technologies, and transacting carbon credits and carbon offsets. An active member of the firm's energy commodity trading and compliance working group, hydrogen working group, electric vehicles working group, and renewables working group, she is resident in the Washington, D.C., office and can be reached

at pamela.wu@morganlewis.com. **Levi McAllister** (R), a partner at the firm, is head of its electric vehicles (EV) working group and energy commodity trading and compliance working group, and helps energy companies navigate the quickly evolving regulatory and investment environment for both conventional and emerging energy technologies. He guides clients seeking to reduce their carbon footprints and take advantage of new and evolving energy storage and infrastructure assets, while also advising on energy commodity trading and the deployment of EVs and EV infrastructure in U.S. markets. He is resident in the Washington, D.C., office and can be reached at levi.mcallister@morganlewis.com.

This article was first published on Reuters Legal News and Westlaw Today on March 2, 2023.