What Hydrogen Cos. Should Know About Fuel Incentives

By Susan Lafferty, David McCullough and Nicholas Hillman
(March 12, 2021, 4:39 PM EST)

The global energy transition is upon us, and both state and federal governments have the opportunity to propel a number of alternative, low-carbon transportation fuels into the mainstream. One such fuel is hydrogen, which has begun attracting attention globally and in the U.S., due to its potential as a low- or zero-emission transportation fuel.

However, as with many alternative fuels, the costs associated with the production and supply of hydrogen is substantial, especially as it gets closer to zero emissions. Existing state regulatory frameworks, as well as some currently being considered, can assist in offsetting costs associated with producing and supplying hydrogen.

Accordingly, regulatory and policy conditions appear prime for hydrogen producers and suppliers to take advantage of these frameworks, and advocate for their further development and implementation throughout the U.S., at both the state and federal levels.

In this article, we discuss the regulatory frameworks that producers and suppliers should familiarize themselves with and consider supporting as they continue to expand and become more prevalent.

Opportunities for Hydrogen as a Transportation Fuel

The transportation sector is the largest contributor of greenhouse gas emissions in the United States, with 28% of total emissions in 2018.[1] Identifying low-carbon transportation fuel has become a priority, and hydrogen has attracted significant interest due to its low carbon intensity — the quantity of greenhouse gas emissions throughout the life of the fuel from production to combustion.

Combining hydrogen and oxygen in a fuel cell results in zero carbon emissions, producing only water vapor and heat. Such a power source is two to three times more efficient than an internal combustion engine.[2] Hydrogen extracted from natural gas — which is how 95% of hydrogen is currently produced — does contribute some carbon emissions through its life cycle. But fuel cell vehicles utilizing such hydrogen would still cut emissions by over 30% compared with
gasoline-powered internal combustion engines.[3]

The Biden administration can utilize regulatory authority in existing federal programs, and support the creation and expansion of similar state programs, to help offset the costs associated with hydrogen. To date, this has largely been accomplished with other low-carbon fuels through the issuance of environmental credits to companies that produce and supply such fuels — with the two most significant programs being the federal Renewable Fuel Standard, or RFS, program and California's Low Carbon Fuel Standard, or LCFS.

The Renewable Fuel Standard

At the federal level, the U.S. Environmental Protection Agency administers the RFS, which establishes annual volume mandates for the use of qualifying renewable fuel as a transportation fuel in the U.S. Significantly, the RFS is the only federal statute ever enacted that mandates greenhouse gas reductions.

The RFS meets its mandate by allowing renewable fuel producers to generate a credit, known as a renewable identification number, or RIN, for each gallon or gallon equivalent of renewable fuel they produce. The RINs may then be separated, typically when the renewable fuel is blended to create a finished transportation fuel, and freely traded among registered parties.

Refiners and importers of gasoline and diesel fuel must acquire and retire these RINs on an annual basis corresponding to a percentage standard set by the EPA. Under the RFS, a hydrogen producer could sell the RINs generated with its fuel, and the resulting revenue could significantly offset operation costs and incent further development and production.

One need not look far to see how the RFS has served as a catalyst for the development and supply of other low-carbon renewable fuels. For instance, ethanol consumption in the U.S. increased more than 300% from 2004 to 2017,[4] and domestic biodiesel consumption increased more than 6,500% during the same time.

This has created a robust and mature biofuels market that supports thousands of jobs across the U.S.[5] However, the RFS is not technology and fuel neutral — meaning only a select number of fuels are currently eligible to generate credits.

Hydrogen produced from biogas is eligible under the statute to generate credits, and as of this writing, there are five pending pathway petitions for hydrogen fuel. However, the EPA has yet to act on these petitions, many of which have been pending for more than a year.

The Biden administration has the authority under the RFS to immediately remedy this and approve a hydrogen pathway, which would lead to credit generating opportunities and investment in hydrogen fuel development, as it has for other now-mainstream renewable fuels.

The California Low Carbon Fuel Standard

The California LCFS is designed to decrease the carbon intensity of California's transportation fuel pool, and provide an increasing range of low-carbon alternatives. Generally, the LCFS sets an overall carbon intensity for the supply of fuel within the state, and issue credits for the importation or production of fuels with a carbon intensity lower than the standard.
On the other hand, parties that produce or import fuels above the standard incur deficits, and must purchase and retire an amount of LCFS credits equal to those deficits on an annual basis. The low-carbon fuel producers and importers can sell their LCFS credits at a given market price to other suppliers who need to retire the credits for compliance purposes, providing a significant financial incentive for the production and supply of low-carbon transportation fuels.

Under the LCFS, a number of pathways currently exist for hydrogen transportation fuel. Credits can be generated by the parties that own the fuel supply equipment that dispenses hydrogen to vehicles as a transportation fuel.

The market for LCFS credits has grown dramatically since the implementation of the program in 2011. The total value of LCFS credit transactions exceeded $2 billion in 2018, providing suppliers of hydrogen with a robust market in which to build additional revenue.

Additionally, hydrogen may play a significant role in California’s future regulatory landscape. In September 2020, California Gov. Gavin Newsom issued Executive Order N-79-20, which directed the California Air Resources Board to develop regulations requiring that all new passenger cars and trucks sold within California be zero-emission vehicles by 2035, and that all new medium- and heavy-duty vehicles sold in the state to be zero-emission vehicles by 2045.

While the rules that the board ultimately promulgates may provide more clarity, the order does not specifically require electric vehicles, but rather "zero-emission vehicles," which will include fuel cell vehicles powered by hydrogen.

This impending shift in the California transportation sector, in conjunction with the financial benefits accorded through the LCFS, may position hydrogen as a key low- or zero-emission transportation fuel in California’s climate and mobile source strategy.

**The Prospect of a National LCFS Network**

Another option reportedly being considered is a federal LCFS program, which would expand opportunities for the investment in — and incentives for — a greater diversity of renewable fuels than federal law currently permits.

Congressional Democrats have already expressed their support for a federal LCFS program in a U.S. House of Representatives Select Committee on the Climate Crisis majority staff report released in June 2020. The Biden administration would likely support the development of such a program.

Lawmakers would likely design a federal LCFS to be compatible with, rather than preempt, similar state programs — which would encourage more states to develop LCFS programs and further promote the production and supply of low-carbon fuels like hydrogen.

Currently, Oregon is the only other state to have implemented an LCFS program, which is called the Clean Fuels Program, and is structured similarly to the California LCFS. Under the Clean Fuels Program, the party that owns the finished hydrogen fuel when the fuel is dispensed for use into a motor vehicle is eligible to generate credits.

Several other U.S. states are currently considering LCFS programs, including New York, Colorado, Washington and New Mexico. Washington and New Mexico appear to have sufficient support in the
legislature to pass LCFS enabling legislation during the current legislative sessions.

Additionally, Gov. Charlie Baker recently released Massachusetts’ Clean Energy and Climate Plan for 2030, which expresses the state’s intention to lead an effort to develop a regional LCFS by 2026 that would support the deployment of low-carbon transportation fuels like hydrogen, similar to the California and Oregon programs.

Any federal LCFS program would likely require enabling legislation, and it would probably take two or more years to promulgate any associated regulations. However, a national network of LCFS programs would create a national credit market, through which producers and suppliers of hydrogen transportation fuel may build supplemental revenue and help offset their costs.

**Conclusion**

To help combat greenhouse gas emissions from the transportation sector, identifying and supporting low-carbon alternatives to petroleum-based transportation fuels has become a priority.

Both the federal government and a number of state governments are making efforts to meet increasingly demanding climate and emission reduction goals. Regulatory approaches similar to the RFS and LCFS programs could provide some of the financial support that hydrogen needs to be a key low- or zero-emission transportation fuel for the future.

Producers and suppliers of hydrogen transportation fuel should consider familiarizing themselves with, and taking advantage of, these favorable and financially lucrative regulatory frameworks — and advocating for the development of similar frameworks throughout the U.S.

Susan Lafferty and David McCullough are partners, and Nicholas Hillman is an associate, at Eversheds Sutherland.

The opinions expressed are those of the author(s) and do not necessarily reflect the views of the firm, its clients or Portfolio Media Inc., or any of its or their respective affiliates. This article is for general information purposes and is not intended to be and should not be taken as legal advice.


