

Roth: Time to reap benefits of hydrogen

By [Jim Roth](#), Director and Chair of the Firm's Clean Energy Practice Group. This column was [originally published in The Journal Record](#) on September 11, 2017.



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[A previous column](#) considered hydrogen's increased use primarily in fuel cell vehicles, but there are some exciting advancements for hydrogen's potential use in utilities.

Innovation requires effort and capital, so augmenting the research that expands the applicability of hydrogen is key. Hydrogen is not just for NASA's rockets or, worse yet, even for North Korea's crazy rocket testing. Hydrogen is used all

over the world to fuel public buses, material-handling vehicles like forklifts, and as mentioned, fuel cell vehicles. Hydrogen can help solve energy problems in the future, but the research needs continued funding.

Promisingly, several corporations are leading the charge, as well as great work by the National Renewable Energy Laboratories.

I open with a reference to NREL, which is known as a neutral organization, owned by the U.S. government and funded by the U.S. Department of Energy, but run by a private contractor, because, as always, there is another side to hydrogen's uptick: the side against it.

First as a refresher, some high points of hydrogen's potential as a fuel. It can be stored indefinitely and transported easily, which makes it a viable solution to the intermittency issues posed by some renewable energy. Timeless storage and ease of transport also make hydrogen fuel cells more efficient and longer-lasting than lithium-ion battery technology, which is currently experiencing a zenith.

Tesla co-founder Elon Musk is quoted saying hydrogen as fuel "is incredibly dumb," but comparing hydrogen cell-fueled to purely electric vehicles at this point would be to undermine its potential – the technology just isn't as developed yet. When we were all carrying (and impressed by the capabilities of) PDAs, it is a great thing that Steve Jobs and Steve Wozniak proceeded with the technology that would give us iPhones, though at the time, it probably seemed far-fetched.

Other naysayers cite a lack of infrastructure. The counterargument to this has to be: Were there cellphone charging stations inside airports in 2010? Demand can produce the infrastructure, although its growth may be incremental.

I prefer the old adage "rising tides lift all boats." Obviously, the future of hydrogen cell-powered vehicles is yet

to be seen, but it is exciting to think of yet another clean energy option, which Oklahoma can strongly contribute. It's also interesting to think, as Motley Fool recently stated, that investing in certain hydrogen fuel cell stocks today is likely akin to buying Amazon stock in 1997 (\$5,000 then, worth \$1M now). Please consult your own investment expert before following that advice.

But nonetheless, if since the 1970s NASA could use hydrogen to fuel its space shuttle and also allow the crew to safely drink the byproduct of that fuel, then isn't it high-time the rest of us reap some of the benefits of abundant hydrogen here on Earth?

Major global companies like Royal Dutch Shell, Total SA and Toyota have formed a hydrogen council of 13 energy, transport and industrial companies to consult with public policymakers about the promise of hydrogen. They have committed nearly 11 billion euros in hydrogen-related products within the next five years and are betting that batteries are not the only way that hydrogen can help reduce pollution in cars, homes, utilities and businesses. That type of push may just be what hydrogen needs to get off the ground.

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