

STAFF REPORT



MEETING DATE:	April 27, 2021
SUBJECT:	Hydrogen Fuels Transportation Workshop
AGENDA ITEM:	7
STAFF CONTACT:	Daniel S. Little, Executive Director

SUMMARY:

The time has arrived to consider how the current deployment of Hydrogen Fuel Cell (HFC) technology will play out in the Shasta region. What role do we play and what are our economic opportunities? This introductory workshop will take the first step with a series of private sector experts providing brief overviews regarding the HFC industry, fueling, and transportation applications. SRTA intends to collaborate with private interests along with local, state, and federal agencies to prepare for — and take advantage of — substantial HFC investments that will occur over the next ten years, and beyond, in our region.

STAFF RECOMMENDATION:

It is recommended that the SRTA Board of Directors receive a presentation from private sector representatives regarding growth and future trends in hydrogen fueling and HFC technology.

DISCUSSION:

Hydrogen fuel deployment is occurring more rapidly than ever. The technology has applications for all types of vehicles, equipment, and stationary power needs. HFC technology is already in use in the Shasta region for things like forklifts, off-the-grid power for vital communications such as transmission towers, and reliable emergency back-up power scaled to any need. Rather than simply burn the hydrogen, fuel cell technology transfers the hydrogen into electricity to run machinery and operate vehicles quietly and emission free.

Hydrogen is readily available everywhere but not in pure form and must be extracted from common compounds such as water. This requires energy and the resulting hydrogen provides a versatile power source. To the extent the energy source used to produce the hydrogen is low- or no-emission, so too is the net effect of that hydrogen as a pollutant. There is much debate among zero-emission advocates regarding the efficacy of HFC electric consumer vehicles versus standard plug-in electric vehicles. For heavy-duty applications such as trucks, however, there is a stronger consensus that HFC electric vehicles are the most feasible solution because of weight-to-energy ratios.

REGIONAL ADVANTAGE: The key regional variables that can make hydrogen fuel production economically attractive include reliable and relatively low-cost power, available land, and a developed high demand for hydrogen use resulting in a scale of economies that lowers production costs. The Shasta region is well-positioned to take advantage of these variables for the following reasons:

Location - The region is strategically located on Interstate 5 and the Union Pacific Railroad. These backbones connect goods and the California economy to the Pacific Northwest. Ambitious private and public sector goals — both immediate and longer-term — will fund the building of hydrogen fueling infrastructure, particularly for heavy-duty truck applications. The Shasta region is identified as a critical link for hydrogen fueling and a geographic priority for investment because of its distance from other major urban centers. Substantial funds have already been allocated with more committed over the next several years

through state, federal and private partnerships. Even in the absence of public subsidies, private sector development of smaller-scale hydrogen fuel manufacturing and dispensing is now occurring in our region.

Energy - The region's power portfolio is attractive for HFC investors. Redding and the city of Shasta Lake, in particular, can provide affordable power and, as their own utility, can be more responsive to private sector needs. In addition, hydrogen deployment will include investments in cleaner energy sources used to extract hydrogen for which the region is well-positioned with options like solar, wind, forest biomass, hydroelectric, and even landfill methane. Energy to create hydrogen can be used at off-peak times and the resulting hydrogen fuel energy can be stored for later use whenever and wherever needed.

Demand - Our strategic location for goods movement will create increasing demand as hydrogen fueling infrastructure becomes fully developed. At the current rate of investment, it is anticipated that there will be 100 new fueling stations in California in the next five years to meet the need for statewide travel by cars and trucks. Oregon and Washington infrastructure will lag a few years behind California making Redding a critical link between the states. Once the basic network is complete, deployment will rapidly accelerate along with economic opportunities. Demand, however, is not just linear along the Interstate. The Shasta region is a hub to the North State Super Region and can also serve as a hub to feed an emerging hydrogen economy for all HFC applications, both mobile and stationary.

Available Land - Industrial and commercial land in the region is widely available and affordable to both produce and dispense hydrogen fuels. These include industrial parks and repurposed commercial sites for fueling. With proper planning, these sites can also support related manufacturing and repair of HFC equipment and components.

NEXT STEPS - Moving forward, SRTA will work with interested municipalities and other agencies such as the Shasta Economic Development Corporation to better forge relationships between private, state, and federal investors. About \$100,000 in planning funds are already budgeted and reserved in SRTA's Overall Work Program for this purpose.

Staff intends to remain flexible on where this may lead. It could result in a public-private consortium of interests to facilitate shorter-term investments and grants, and could also serve to promote a longer-term vision. While SRTA is initiating this from a transportation perspective, the goal is for other local interests to take the lead on aspects more aligned with their respective missions should this dialogue gain momentum.



Daniel S. Little, AICP, Executive Director

Suggested Resources:

Hydrogen Fuel Cell Partnership FAQ: <https://cafcp.org/faqs>

California Hydrogen Business Council FAQ: <https://www.californiahydrogen.org/resources/hydrogen-faq/#S23>

Overview of Hydrogen Fuel Cell Electric Vehicle Technology (10-minute Video): <https://youtu.be/tnzuuLpYFVg>