

The Potential of Hydrogen

Though primarily used for food production, petroleum refining, and making ammonia, hydrogen applications have advanced in recent years as an alternative fuel source. Incorporating Hydrogen into our energy system would have profoundly positive impacts on the sustainability of our planet.

Hydrogen Fuel Cell vs. Battery Electric Buses

While battery electric (BE) buses have captured the legislative and media attention in recent years, hydrogen fuel cell (HFC) buses continue to improve and are now thought of as a viable alternative for zero-emission transportation and larger scale commercial applications. What's important to note is that while both are electric, HFC buses [tend](#) to have a longer range in both optimal and poor weather conditions than BE buses. The use of battery electric buses shouldn't be diminished, but the differences between the two types should be considered based upon a community's locale and climate conditions.

Energy Security

Given the push in recent years towards energy security in the U.S., hydrogen will play a prominent role in domestic energy production. When used as fuel, hydrogen—similar to electricity—can be produced with solar, wind, natural gas, or biomass processes, thus making hydrogen an attractive way to reduce dependency on a volatile commodity like oil and its geopolitics.

Tool for Decarbonization

With the transportation sector accounting for more than 30% of fuel needs in the U.S. as well as 27% of the country's total greenhouse gas emissions, hydrogen produced through sustainable energy sources is an efficient way to help our country meet its ambitious emissions reduction goals, particularly since HFC bus development is a zero-emissions process and, therefore, green from beginning to end. Further, experts agree that hydrogen can fill an important gap by providing reliable energy for when wind, solar, or other renewable resources are offline.

Scaling up

A International Energy Agency [report](#) from 2019 concluded that allowing hydrogen to become widely used will scale up technologies and bring down overall energy costs. With recent federal investments such as the Department of Energy's Hydrogen Hubs program and critical hydrogen support in the Inflation Reduction Act, expect to see the cost of producing and purchasing hydrogen decrease in the upcoming years, as hydrogen fuel becomes a critical component of our zero-emissions future.