



Harnessing power of hydrogen critical to state's energy transition

By Dr. Van Romero

The time is now for New Mexico to move toward a new energy future.

The Department of Energy is investing \$7 billion in regional clean energy Hydrogen Hubs. These hubs will produce, store, and burn hydrogen — a fuel that will help us meet the critical energy needs of our communities without emitting carbon, depending on how it is produced and managed.

A focus on hydrogen will benefit New Mexico's energy landscape. First, hydrogen presents New Mexico with the opportunity to diversify our energy economy while meeting our energy needs. Hydrogen production, storage and burning will create sustainable, high-paying jobs in New Mexico and provide the fuel needed for many industrial processes.

Hydrogen is an important tool in the push to meet our country's aggressive climate goals. Especially as the Biden administration looks to meet ambitious net zero goals by 2050. Investment in these technologies now is critical.

A true all-of-the-above, forward-thinking energy strategy will require investment in both green and blue hydrogen. Hydrogen generated from the electrolysis of water is

referred to as "green hydrogen." Its byproducts are hydrogen and oxygen, both of which are harmless. But electrolysis is expensive and uses a lot of water, a scarce resource in the state.

Hydrogen generated from the steam methane reforming of natural gas is called "blue hydrogen." Blue hydrogen is easier to extract but produces carbon dioxide as a byproduct, which is why investment in Carbon Capture and Storage (CCS) will be so critical for the future of our state.

CCS technology is not new in New Mexico. New Mexico Tech, along with the University of Utah, Los Alamos National Lab, Sandia National Lab, and Pacific Northwest National Lab, have studied the storage of carbon dioxide by injecting 1.5 million metric tons of carbon dioxide into geologic formations over the 20-year course of the study. The goal was to ensure the long-term safety of the carbon storage, ensuring that we can safely extract energy from blue hydrogen without concern about adding to the growing carbon crisis.

Mother Nature also shows us that natural carbon dioxide deposits, discovered in New Mexico in 1917 in a formation known as the Bravo Dome, have been successfully stored

for over a million years. The Bravo Dome is one of nine known natural occurring reservoirs of carbon dioxide in the United States that stretch from Montana to New Mexico to Mississippi. Clearly, Mother Nature has demonstrated that carbon dioxide can be permanently sequestered in geologic formations. There is no reason to believe that new carbon storage projects will have different outcomes.

Harnessing the power of hydrogen is critical in New Mexico's push to transition to a timely all-of-the-above energy strategy to keep our economy strong and diversify our energy future. Further expansion of hydrogen technology along with an expanded focus on CCS will ensure our state is able to continue on a pathway to a hydrogen economy.

EFI Foundation's Dr. Van Romero is Vice President of special research programs and professor of physics at New Mexico Tech.

https://www.abqjournal.com/opinion/span-class-print-trim-opinion-span-harnessing-power-of-hydrogen-critical-to-states-energy-transition/article_37f255de-2744-11ee-8132-c73foefo37e7.html