



# Hydrogen Fact Sheet

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**The Future of Energy is Changing. Hydrogen has a Role. San Juan County can be a Hub for Hydrogen!**

***Carbon reduction is the name of the game and hydrogen plays a role in transition.***

As with all transitions there's a need to work with and embrace new technologies and new approaches. Regardless of energy politics, 4CED believes hydrogen can, should and will play a role in America's energy future.

San Juan County is ideally positioned to be a major player in the future of hydrogen equipment manufacturing and hydrogen energy production and use. Supporting hydrogen development is good for SJ County, its families and business community and the environment.

## ***Why Hydrogen?***

Hydrogen when burned is a proven, dependable source of heat. Hydrogen is the energy behind fuel cells. When burned, hydrogen releases no CO<sub>2</sub>. When used in a fuel cell for transportation only water is released to the atmosphere.

For certain aspects of the economy, hydrogen is the ONLY viable solution for providing a carbon free energy source. Hydrogen is ideally suited for use in long-haul trucking, warehouse logistic operations, air travel, shipping and other industrial processes. The heavy weight of batteries make them an impractical solution for powering things like long-haul truck tractors and aircraft.

Other future uses of hydrogen include the dependable 24x7 generation of thermal electric power in lieu of fossil fuels and for use as a "battery" where hydrogen can be made through the [electrolysis of water](#) when excess renewable power is available from the grid. Produced hydrogen can then be stored and burned to generate electricity as the electric grid calls for more power to remain in balance.

## ***Broad Hydrogen Energy Policy Happenings at the U.S. and State of NM Bode Well for SJ County!***

Hydrogen research, development, production, and usage is strongly encouraged by the U.S. Department of Energy as part of its effort to reduce the nation's carbon footprint. There's \$8 billion set aside for four or more designated U.S. hydrogen hubs to accelerate development and New Mexico is in the hunt to be awarded one.

To support the effort, New Mexico Governor Michelle Lujan-Grisham and Representative Patricia Lundstrom introduced legislation that seeks to both advance hydrogen development in New Mexico and offer tangible evidence to Federal decision makers of NM's commitment to hydrogen. Of course, the efforts of two of the Nation's premier energy research laboratories (Sandia and Los Alamos) along with its research universities are also being brought to bear.

## **What Could Hydrogen Hub Designation Mean for San Juan County?**

*Base economic jobs and potentially many of them!* Hydrogen energy production and consumption requires the design, construction, operation, and maintenance of new energy infrastructure.

New hydrogen-related jobs can include work related to constructing and operating new renewable energy production facilities like wind and solar. This is because one form of hydrogen production (electrolysis of water) requires large amounts of electricity as input energy to split water molecules into its component parts of hydrogen and oxygen.

Jobs are also associated with the continued operation of SJ County's natural gas wells (as another hydrogen manufacturing process uses natural gas and steam to make hydrogen through steam reformation (SRM)). It is now evident, based on the spectacular results of recent drilling in the Mancos formation, that the San Juan Basin holds a vast new supply of natural gas – a new equivalent in volume to all the gas produced in the basin since production began in 1921!

Hydrogen production equipment manufacturing jobs are also on the horizon. Even now local equipment manufacturer PESCO is gearing up to do large-scale manufacturing for BayoTech – an Albuquerque-based start-up that is a spin off from primary research done at Sandia National Laboratories.

San Juan College is ideally suited as NM's premier workforce training institution for all things hydrogen. The SJ College School of Energy is already designated as an energy education center of excellence and has partnered with BayoTech and PESCO to develop a hydrogen technician certification program.

Topping it off, with the San Juan Basin's abundant and deep porous underground reservoirs, SJ County has a big opportunity to sequester and store produced CO<sub>2</sub>. The geologic blessing of readymade storage reservoirs, in combination with hydrogen production using locally produced natural gas in the SMR process, means SJ County has the potential to produce an almost unlimited supply of hydrogen with little or no greenhouse gas emissions.

## ***What Would Hydrogen Hub Designation Mean for the Environment?***

Reducing CO<sub>2</sub> emissions and man's contribution to global warming is the objective.

The continued development of carbon sequestration technologies and the efforts of energy producers to reduce methane emissions from natural gas wells combine in the hydrogen development agenda to reduce atmospheric emissions and man's contribution to global warming.

## ***What's in For Me and my Family?***

A healthier local economy that builds quality of life for all. Energy has long been a staple source of economic prosperity for San Juan County. In combination with renewable energy production, hydrogen production is a next logical step.

Jobs and new capital investment in energy projects produce growing and predictable funding streams for local governments and schools. Hydrogen development can also attract new residents to San Juan County – important given that San Juan County's population shrank six percent from 2010 to 2020.

The positive impacts of the income multiplier of new industry development also come to bear. According to [New Mexico State University](#), a measure used to demonstrate the economic impact of new

investment is the income multiplier. Multiplier values vary by type of new development, but conservatively range from 1.5 to a maximum of 4 or 5. These are dollars that “roll over” within a community to support other SJ County jobs at local stores and service providers.

**The bottom line is that there’s lots of positive ahead for families and businesses with the development of a hydrogen hub in New Mexico and San Juan County.**

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