

UNIVERSITY OF WYOMING
SCHOOL OF ENERGY RESOURCES

ISSUE SNAPSHOT

CENTER FOR ENERGY REGULATION & POLICY ANALYSIS

2025

WYOMING
**LEASING & PERMITTING
RULES & REGULATIONS**
— FOR —
**NATURAL HYDROGEN
EXPLORATION & PRODUCTION**

ISSUE SNAPSHOT



UW

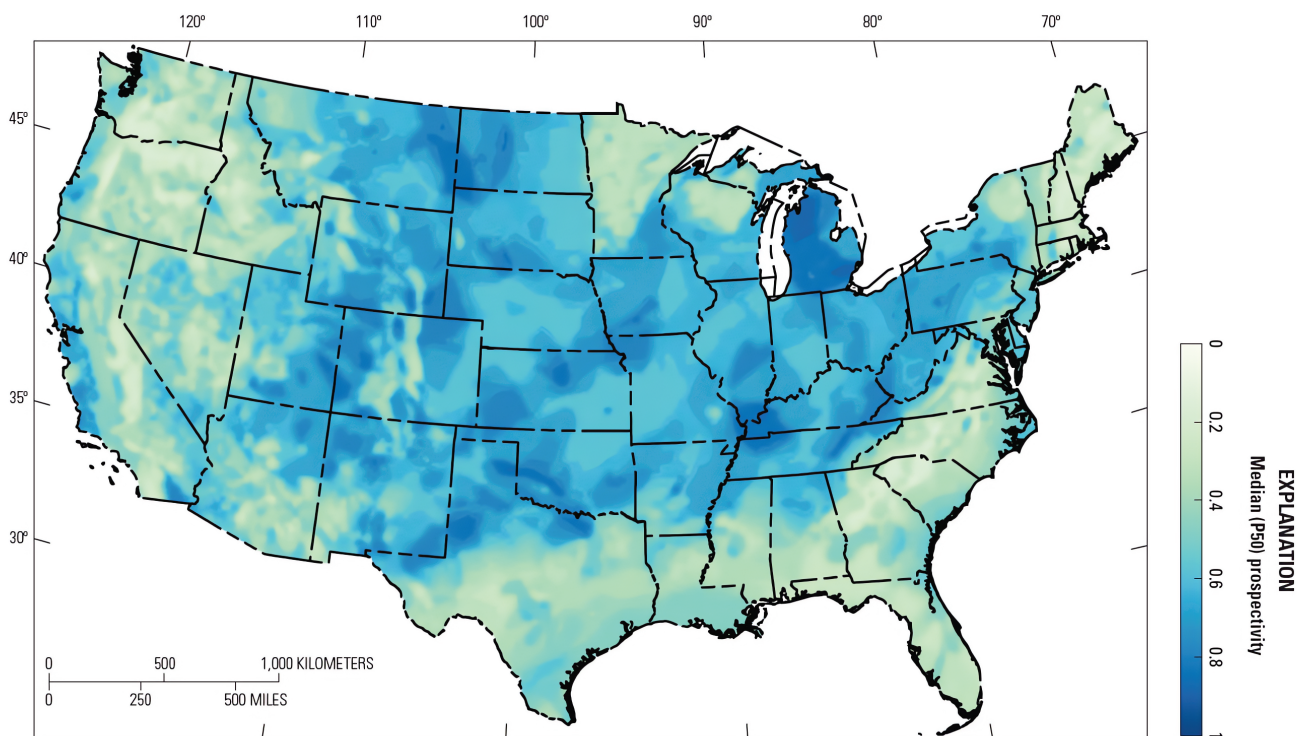
School of Energy Resources
Center for Energy Regulation
& Policy Analysis

1000 E. University Avenue, Dept. 3012
Laramie, Wyoming 82071

INTRODUCTION

Interest in the production of naturally occurring hydrogen has grown significantly in recent years. This growth is largely due to the regulatory incentives provided in the Inflation Reduction Act (IRA) through 45V hydrogen production tax credits, and a 2023 United States Geological Survey (USGS) report indicating the potential for large deposits of geologic hydrogen in certain areas of the United States.¹ USGS published a new report regarding prospectivity mapping for geologic hydrogen in January 2025 that includes a map showing areas of the United States where geologic hydrogen is likely to occur, with areas that are likelier to contain geologic hydrogen depicted in deep blue (Figure 1).^{2,3}

Figure 1. USGS map showing prospectivity of geologic hydrogen in the U.S.⁴



Base from U.S. Geological Survey, The National Map, 2021
Albers Equal-Area Conic, U.S. Geological Survey contiguous United States projection
North American Datum of 1983

¹ USGS Communications and Publishing, *The Potential for Geologic Hydrogen for Next-Generation Energy*, U.S. GEOLOGICAL SURVEY (USGS) (Apr. 13, 2023), <https://www.usgs.gov/news/featured-story/potential-geologic-hydrogen-next-generation-energy>;

² Sarah E. Gelman, Jane S. Hearon, and Geoffrey S. Ellis, *Prospectivity Mapping for Geologic Hydrogen*, USGS (Jan. 2025), <https://pubs.usgs.gov/pp/1900/pp1900.pdf>.

³ USGS Communications and Publishing, *USGS releases first-ever map of potential for geologic hydrogen in U.S.*, USGS (Jan. 16, 2025), <https://www.usgs.gov/news/national-news-release/usgs-releases-first-ever-map-potential-geologic-hydrogen-us>

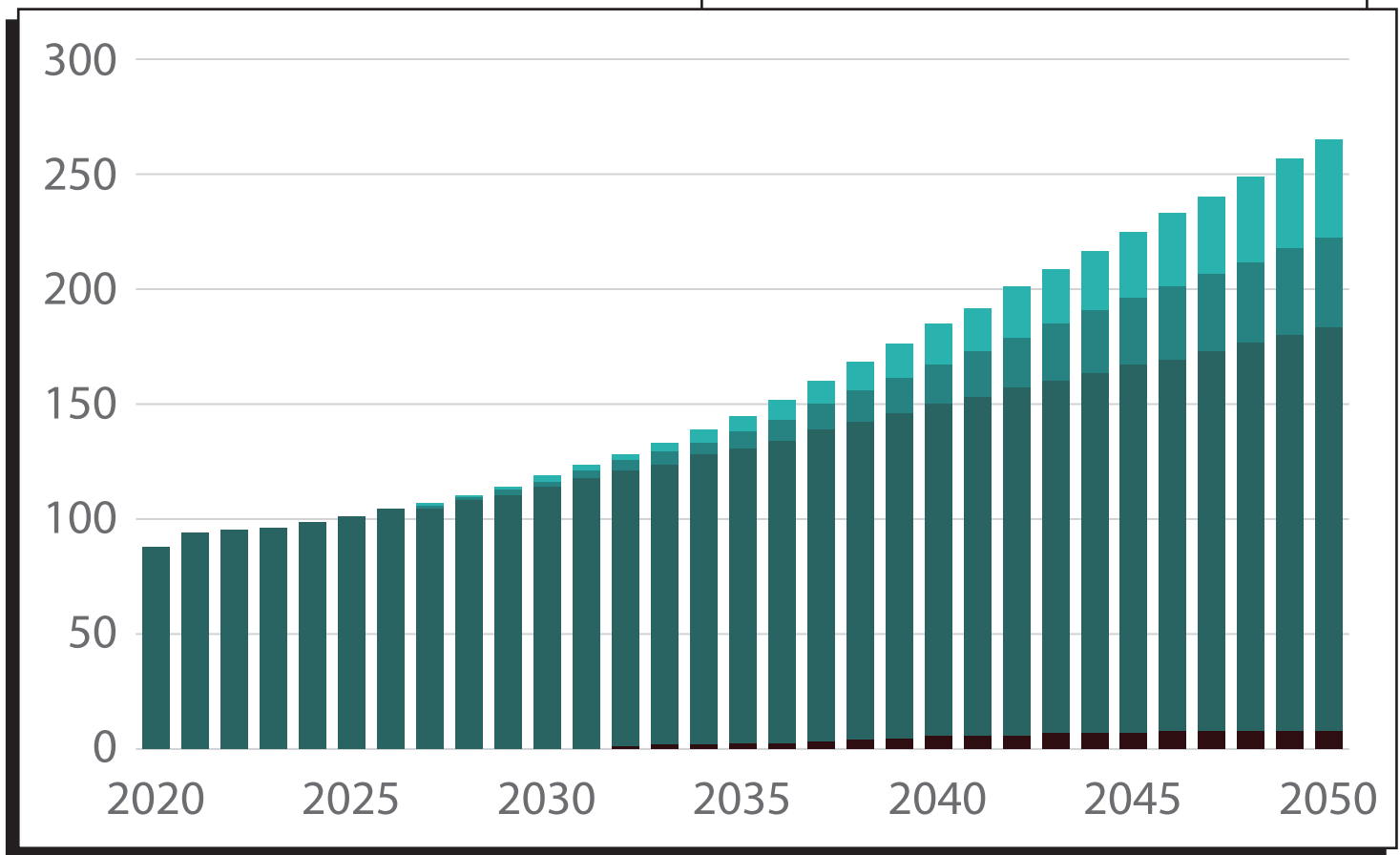
⁴ *Ibid.*

GLOBAL DEMAND

Global demand for hydrogen is “projected to rise from the current 97 million mt/year, which is primarily used in the industrial sector, to 119 million mt/year in 2030 and 265 million mt/year in 2050, according to S&P Global data” (Figure 2).⁵

Figure 2. Global Hydrogen Demand in End-Use Sectors (million mt)⁶

Transport	Industrial
Power and heat generation	Residential and commercial



⁵ Santiago Canel Soria and Adriana Campos, *Geologic hydrogen attracts interest as a clean energy source*, S&P Global (Oct. 18, 2023), <https://www.spglobal.com/commodity-insights/en/news-research/latest-news/energy-transition/101723-geologic-hydrogen-attracts-interest-as-a-clean-energy-source>.

WYOMING STATUTES, RULES & REGULATIONS

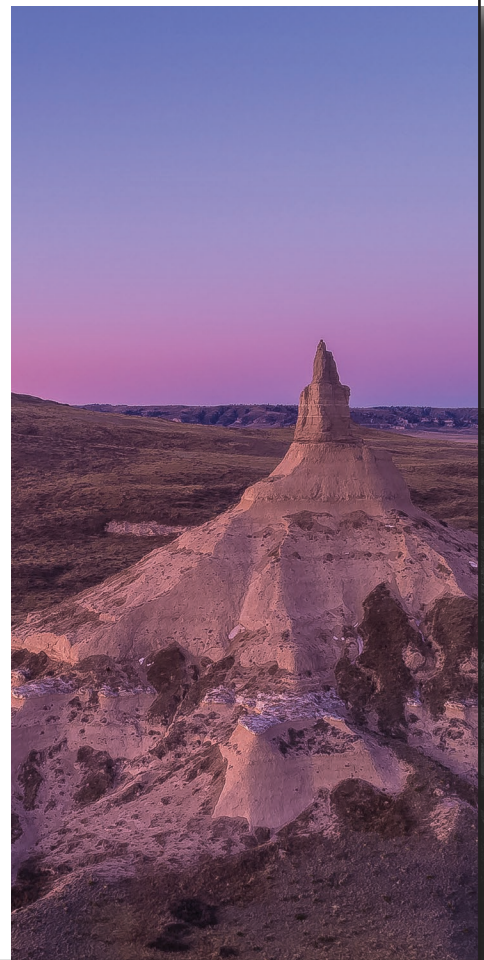
While Hydrogen exploration projects are taking place in Nebraska and Kansas, other states, such as Iowa, Minnesota, Texas and Oklahoma, are reviewing existing rules and regulations to determine if they include provisions covering the exploration and production of geologic hydrogen, and making adjustments where necessary.^{7,8,9,10} For instance, Minnesota has specified that the definition of gas includes both hydrocarbon and nonhydrocarbon gases, and Iowa has amended the definition of gas from “natural gas” to “naturally occurring gases”.¹¹

A review of Wyoming statutes, rules and regulations reveals that hydrogen falls within the definition of gas. As such, leasing and permitting of geologic hydrogen are governed by the State’s oil and gas rules and regulations.

With regard to State oil and gas leasing, the Wyoming Office of State Lands and Investments administrative rules define “oil and gas” as

oil and gas, coalbed gas, other kindred hydrocarbons present in the earth and extracted in a gaseous or liquid state, and non-hydrocarbon gases and any by-products recovered from such gases. It does not mean coal, lignite, oil shale, or similar solid hydrocarbons.¹²

This definition includes hydrogen which is classified as a nonhydrocarbon gas.



⁶ *Ibid.*

⁷ PureWave Hydrogen Provides Update on the Lily Rock Hydrogen Project and the Surrounding Play Area in Kansas, USA, PUREWAVE HYDROGEN (Jan. 8, 2025) <https://www.purewavehydrogen.com/news/purewave-hydrogen-provides-update-on-the-lily-rock-hydrogen-project-and-the-surrounding-play-area-in-kansas-usa>

⁸ Michelle Ma and David R Baker, *Hydrogen Wildcatters are Betting Big on Kansas to Strike it Rich*, BNN Bloomberg (Nov. 16, 2024), <https://www.bnnbloomberg.ca/investing/commodities/2024/11/16/hydrogen-wildcatters-are-betting-big-on-kansas-to-strike-it-rich/>.

⁹ Jason Cassady and Jeremy Greenhouse, *It’s a Gas: Minnesota and Iowa Race to Regulate Newly Discovered Reserves of Helium and Hydrogen*, FREDRICKSON & BYRON P.A. (Dec. 2024), <https://www.fnrel.org/-/media/files/natural-resources-law-network/december-2024/5-helium-and-hydrogen-reserves-in-minnesota-and-iowa-rev.pdf?la=en>.

¹⁰ *Hydrogen Development in Texas: A Report for the 89th Texas Legislature*, TEXAS HYDROGEN PRODUCTION POLICY COUNCIL (Dec. 2024), https://f20d199d-bdde-4990-90e1-1e9c85d8e704.usrfiles.com/ugd/f6794f_421733a8a60f4713b0c1a68bb8a87ea6.pdf

¹¹ See *supra* note 5.

Regarding permits to drill for oil and gas in the State, Wyoming Statute §30-5-101(a)(viii) provides that

“oil” shall mean crude petroleum oil and any other hydrocarbons, regardless of gravities, which are produced at the well in liquid form by ordinary production methods, and which are not the result of condensation of gas before or after it leaves the reservoir. The word “gas” shall mean all natural gases and all hydrocarbons not defined herein as oil¹³

The term “all natural gases” includes hydrogen. The Wyoming Oil and Gas Conservation Commission rules provide the same definition of oil and gas in Chapter 1 of its administrative rules.¹⁴



In accordance with Wyoming Statute §39-14-203, hydrogen produced in the State is subject to severance and ad valorem taxes. This statute defines natural gas as “all gases, both hydrocarbon and nonhydrocarbon, that occur naturally beneath the earth’s crust and are produced from an oil or gas well.”¹⁵

Lastly, Wyoming Statute §36-6-301 regarding calculation of royalties defines natural gas as “hydrocarbons or nonhydrocarbons which at atmospheric conditions of temperature and pressure are in a gaseous phase.”¹⁶ Accordingly, hydrogen falls under the definition of natural gas and is subject to the State’s gas royalty rate when produced from State minerals, or in the case of private minerals, is subject to the royalty rate negotiated with the landowner.

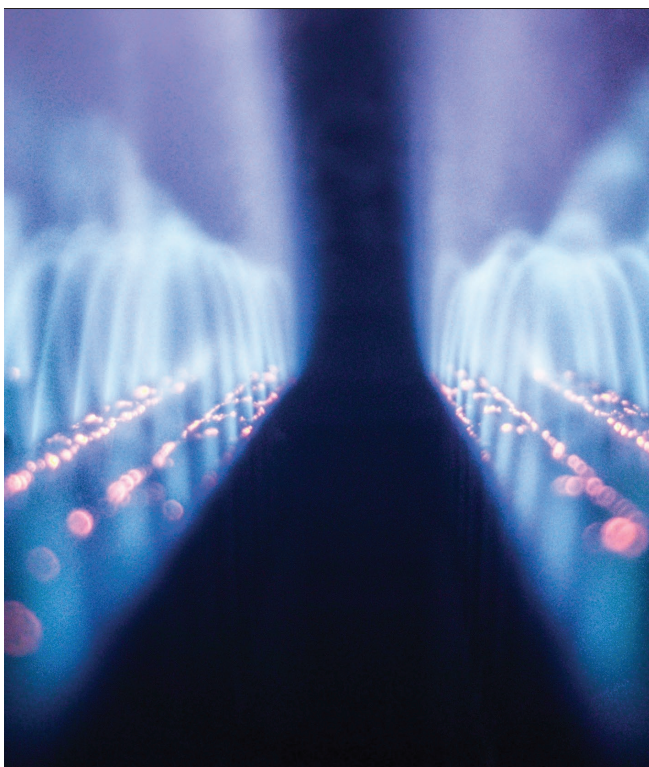
¹² Office of State Lands and Investments, Board of Land Commissioners, 60-18 WYO. CODE R. §2(e).

¹³ WYO. STAT. ANN. §30-5-101(a)(viii) (2024).

¹⁴ Oil and Gas Conservation Commission, 50-1 WYO. CODE R. §2.

¹⁵ WYO. STAT. ANN. §39-14-203 (2024).

¹⁶ WYO. STAT. ANN. §36-6-301 (2024).



ISSUE SNAPSHOT



UW

School of Energy Resources
Center for Energy Regulation
& Policy Analysis

1000 E. University Avenue, Dept. 3012
Laramie, Wyoming 82071



uwyo.edu/ser



UW

School of Energy Resources
Center for Energy Regulation
& Policy Analysis

1000 E. University Avenue, Dept. 3012
Laramie, Wyoming 82071