NETL RESEARCH & INNOVATION CENTER

NETL RELEASES STUDY ON HYDROGEN STORAGE POTENTIAL IN EXISTING UNDERGROUND GAS FACILITIES

Study shows existing U.S. underground gas storage (UGS) facilities can viably store hydrogen-methane blends.



Estimated working-gas energy (TWh) of pure (i.e., 100%) H₂ in U.S. UGS facilities (light to dark red). UGS facility storage-formation types are designated by symbol shape. Shaded regions (light to dark blue) represent total working-gas energy (TWh) of 100% H₂ storage by the natural gas storage reporting regions used by the U.S. Energy Information Agency (South Central, Midwest, East, Mountain, Pacific, and Alaska).

During times of low demand, power providers store excess gas. Then, during periods of high demand, the stored gas is used to meet the increased energy needs.



RESEARCH PRIORITY

- The research team characterized the hydrogen storage potential of UGS facilities in the U.S. and calculated the viability of blending hydrogen with the methane currently contained in the geologic formations.
- The study found that over 70% of UGS facilities can store hydrogen blends of up to 20% and still meet their current energy demand.
- This finding confirms that creating hydrogen during periods of energy surplus and storing it underground could be a long-duration, low-emission, energy storage option.



PERFORMERS



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