

# A Second Life for Fracking Wells

By John Kosowatz

There's a lot of underground modeling taking place as engineers look to expand the portfolio of energy sources. Underground caverns and salt domes are already being used for a compressed air energy systems, and the U.S. petroleum reserves use salt domes for storage. Researchers at the National Renewable Energy Laboratory and Colorado School of Mines now are exploring the feasibility of using depleted fracking wells as a reservoir for storage of compressed natural gas.

Fracking wells are attractive because they are drilled horizontally, with multiple wells from a single pad. They are plentiful—there are more than a quarter-million as of 2017—and they also deplete rapidly, according to researchers. They can lose more than half of their production capacity in a single year. When they become uneconomical, producers shut them down.



Writing in the *Journal of Energy Resources Technology*, researchers projected that the technology could be used for short- and long-term energy storage. Compressed air has initially been rejected as a medium because of the potential of sparking an explosion.

Natural gas, however, is widely available and compatible with the reservoir. In the future, researchers believe other gases, including carbon dioxide, could be used.

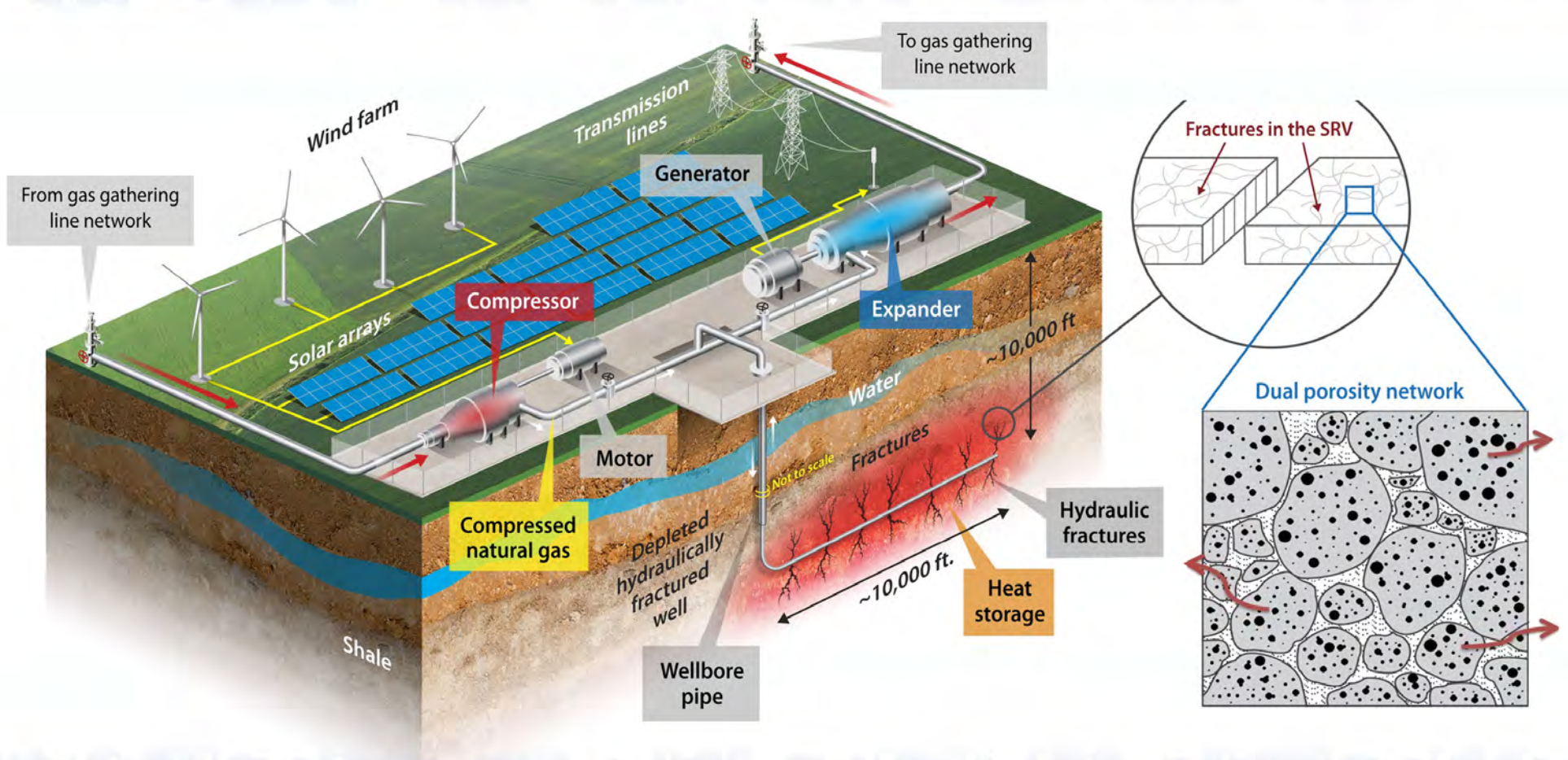


Image: NREL

The technology is called Repurposed FRACKed wells for Energy Storage, or REFRAES. Gas would be injected at a constant flowing bottomhole pressure for storage. The well would then be shut to prevent leakage. Gas would then be released at a constant pressure for electrical generation, and the well shut for recovery. The process then would repeat.