

Can depleted oil & gas wells be used for energy storage?

The idea is to use depleted oil and gas wells as a reservoir for the storage of compressed natural gas. As needed, the gas can be released to spin a turbine and generate electricity. The reservoir is recharged using excess electricity from the grid and the cycle repeats, providing a potential solution for the growing demand for energy storage.

What is energy storage & why is it important?

Energy storage (ES) plays a key role in the energy transition to low-carbon economies due to the rising use of intermittent renewable energy in electrical grids. Among the different ES technologies, compressed air energy storage (CAES) can store tens to hundreds of MW of power capacity for long-term applications and utility-scale.

Could old oil and gas wells be used for storage?

David Young, a senior scientist at NREL whose expertise lies with solar technology, had a "eureka" moment in coming up with the notion to use old oil and gas well sites for storage. "I was taking a shower and I dreamed up the idea," Young said.

Could compressed air be injected into old wells?

Illustration by Al Hicks, NREL The NREL researchers initially considered injecting compressed air into the old wells. Augustine took that idea through the Department of Energy's Energy I-Corps program in 2016. The program helps researchers determine the potential market for their technology.

Can compressed air be used as energy storage?

If you use CO₂ that could also be part of a carbon capture cycle."Using compressed air as energy storage requires additional steps, including cooling the air after the compression stage and preheating it before releasing it. Projects using compressed air also can take years to build and cost hundreds of millions of dollars.

Could depleted oil and gas wells be used as a reservoir?

NREL researchers Chad Augustine (left) and David Young, along with former colleague Henry Johnston, have been examining the idea of using depleted oil and gas wells as a reservoir for the storage of natural gas. The gas can then be released, as needed, to spin a turbine and generate electricity. Photo by Werner Slocum, NREL

CleanTech Geomechanics Inc (CTG) is a Canadian company developing innovative technologies for geo-Energy Storage Systems (geo-ESS). CTG developed the concept of Cased-Wellbore Compressed Air Storage ...

To store energy in idle wells, sustainable power created by solar panels and windmills placed near them would be converted into high-pressure air by a compressor. The air would travel through pipes to subsurface saline ...

NREL researchers Chad Augustine (left) and David Young, along with former colleague Henry Johnston, have been examining the idea of using depleted oil and gas wells as a reservoir for the storage of natural gas. The ...

The USC Energy Institute at the USC Viterbi School of Engineering has signed an MOU with Energy Internet Corporation (EIC) to advance subsurface engineering research to demonstrate the technical ...

Abstract: On May 26, 2022, the world's first nonsupplemental combustion compressed air energy storage power plant (Figure 1), Jintan Salt-cavern Compressed Air Energy Storage National ...

Richard Butland, Co-Founder and CEO of Highview Power with a model of the company's proposed liquid air energy storage plant. The first Scottish LAES will be located at the Peel Ports site at ...

For licences related to compressed air energy storage projects in porous rock Review sections 2 and 2.1 of Ontario Regulation 245/97, and the definitions of "porous rock reservoir" and "pinnacle structure" in the regulation ...