# Fracturing energy storage

Is hydraulic fracturing energy storage feasible?
Verified the feasibilityof hydraulic fracturing energy storage. Demonstrated that hydraulic fracturing energy storage can meet long-duration requirements. Demonstrated great potential of transforming depleted shale oil and gas wells into energy storage wells.

Can hydraulic fracturing provide underground energy storage in shale formations?
In this study,we propose a new underground energy storage technologybased on hydraulic fracturing in shale formations (As shown in ). This patented technology utilizes underground artificial fractures created by hydraulic fracturing to store potential energy.

Can hydraulic fracturing provide geothermal-assisted energy storage?
The intention of this study is to introduce a geothermal-assisted energy storage using hydraulic fracturing,that has the potentialto be implemented in a variety of geological formations that have low permeability and relatively high temperatures,while not limited to traditional EGS reservoirs.

How does loss of fracturing fluid affect energy storage?
In the actual process of hydraulic fracturing energy storage,considering that the loss of fracturing fluid to the surrounding rock will cause the net pressure in the fracture to drop,thereby reducing the stored energy and efficiency,we make the following assumptions. 1.

How to optimize hydraulic fracture energy storage designs?
Thus, in optimizing hydraulic fracture energy storage designs, it is important to prioritize reservoirs with lower permeability, greater fracture toughness, smaller elastic modulus, Poisson's ratios and larger fracture size to ensure fracture energy storage meet economic and energy storage objectives.

How does a fracturing fracture generate electricity?
During peak electricity periods,the high pressureinside the fracture causes the fracturing fluid to flow back to the surface with closing fracture and drive the generator to generate electricity,thereby converting the elastic potential energy and stress potential energy of the surrounding strata into electrical energy.

Underground hydrogen storage (UHS) is one of the key technological solutions for balancing energy systems and promoting sustainable energy development. In this study, we ...

We capture the interplay between caprock fracturing and fault activation during underground hydrogen storage, demonstrating how these two processes are tightly coupled in ...

These findings confirm the technical feasibility of repurposing depleted reservoirs for compressed air energy storage, offering a scalable and environmentally sound energy storage solution with ...

The energy storage medium can weaken the strength of the formation rock and change the pore structure (Li, 2015b; Nowrouzi et al., 2020). The re-fracturing after energy ...

This paper will establish the energy storage fracturing seepage model of the new and old horizontal wells, to study the relationship between the formation pressure coefficient ...

Fracturing for energy storage and permeability enhancement in tight oil reservoirs has been successfully applied in the Ordos Basin to improve reservoir fluid mobilization. However, there ...

Abstract In order to solve the difficulties in the development challenges of poor physical properties, insufficient formation energy, and poor effectiveness of conven-tional fracturing ...

Electric energy storage is currently the primary solution for addressing the intermittency and fluctuation of renewable energy sources. Traditional energy storage methods ...

Abstract. Fracturing for energy storage and permeability enhancement in tight oil reservoirs has been successfully applied in the Ordos Basin to improve reservoir fluid ...

TL;DR: A novel energy storage method using hydraulic fracturing in shale formations is proposed, offering a promising solution to address renewable energy intermittency, with potential to ...

We have analyzed the capacity and efficiency of the hydraulic fracturing energy storage assisted by geothermal energy, which has been operating continuously for 20 days.

Introduced a novel energy storage approach that utilizes hydraulic fracturing technology to store electrical energy. o Provided a method for calculating ...

Abstract In order to further expand the development of renewable energy, achieve low-carbon environmental protection, and promote the transformation of the oil and gas ...

The energy storage fracturing operation of old wells is normal, and the pressure is stable at 5.2MPa after 5-10days of energy supplement, and the formation energy recovery is good, ...

2.1 Mathematical Model of Energy Storage Fracturing for New and Old Wells Three adjacent horizontal wells are selected as the basic research unit, two old wells are located on both ...

The pre-CO 2 energy replenishment fracturing technology has many advantages, such as energy replenishment after pressure, small reservoir damage, effective ...

In order to further expand the development of renewable energy, achieve low-carbon environmental

protection, and promote the transformation of the oil and gas industry, ...

Abstract Similar to wind and solar energy, geothermal energy, as a renewable energy source that is widely distributed, abundant, green, and low-carbon, has substantial potential. In this study, ...

The weakening of energy storage capacity due to microwave irradiation was evaluated by defining an energy storage coefficient. A novel index for assessing the rockburst ...

Energy storage fracturing technology is a technical means by which oil displacement fluid is injected into the reservoir before the traditional hydraulic fracturing and subsequent implement ...

The conventional fracturing techniques in exploration area was not successful in some cases, a novel series of horizontal well energy-storage fracturing techniques is proposed ...

On August 8, China"s highest-power gas generator set and hybrid energy storage system for electric fracturing independently developed and provided on-site support ...

The utility model provides an electrically driven fracturing energy storage system which comprises electrically driven fracturing equipment and an energy storage device, wherein the input ends ...