

In 2021, shale gas production in the United States exceeded $7.638 \times 10^{11} \text{ m}^3$ (Novi Labs, 2022; Zou et al., 2022a); By 2050, it is expected that more than 92% of dry natural gas production in the United States will come from tight and shale gas resources, which can reach $1.11 \times 10^{12} \text{ m}^3$ (U.S. Energy Information Administration, 2022).

Hydraulic fracturing, which is recognized as an effective means for shale gas development (Zou et al. 2019; Feng et al. 2020), especially the staged fracturing of horizontal wells, is a key technology for the effective reconstruction of deep shale reservoirs in southern Sichuan (Zhao et al. 2022c). After fracturing, although the flowback rate of the fracturing fluid in ...

The distribution of matrix pressure and water saturation during the fracturing and shut-in period significantly impacts shale gas production. However, traditional numerical simulations primarily focus on the production period, often overlooking the impact of fracturing and shut-in on the seepage field and production rates.

Hydraulic fracturing, or fracking, has been thrust back into the public spotlight as Vice President Kamala Harris' change of position on it comes under scrutiny given her campaign for the White House. The groundbreaking technique for oil and gas extraction that vaulted the US to energy independence has for years been...

Shale gas is widely distributed and abundant in reserves with huge exploitation potential, which has great social and economic value [1], [2]. Due to the complex physicochemical properties of shale reservoirs [3], almost all shale gas wells need to undergo reservoir fracturing to achieve commercial production, so fracturing technology is one of the key technologies for ...

On May 5, 2011, U.S. Energy Secretary Steven Chu charged the Secretary of Energy Advisory Board (SEAB) Natural Gas Subcommittee to make recommendations to improve the safety and environmental performance of natural gas hydraulic fracturing from shale formations. Secretary Chu extended the Subcommittee membership beyond SEAB members to include ...

Shale gas fracturing in the United States has grown for more than half a century (Fig. 1), which is the most critical technology for the great success of shale gas revolution. Although shale gas was successfully produced in the United States as early as in 1821, the annual output of shale gas was only $19.6 \times 10^8 \text{ m}^3$ until 1980 (Fig. 2). With the ...

11 ???· Jimsar shale oil in China has undergone a rapid decline in formation energy and has a low recovery rate, with poor reservoir permeability. CO₂ injection has become the main ...

Shale gas fracturing energy storage

Shale oil and gas extraction also has important social, political, and economic implications. In the last decade, the North American fracking "boom" has changed the world hydrocarbon industry and energy economy. Shale gas has provided an abundance of natural gas, a bridge fuel toward a low carbon future (Moniz et al., 2011).

The potential to produce oil and gas from low-permeability (tight) rocks has become an exceedingly visible theme of the petroleum industry over the last 2 decades. Many shale and mudstone rock units have been recognized as important potential source rocks because organic material is commonly enriched in them, and in many cases that organic ...

Advances in horizontal drilling technology allow a single well to pass through larger volumes of a shale gas reservoir and thus produce more gas. The development of hydraulic fracturing technology (also known as hydrofracturing, hydrofracking, or simply fracking) has also improved access to shale gas deposits.

The bottom-hole pressure of hydraulic fracturing in ductile reservoirs is much higher than that of the hydraulic fracturing simulation, and the fracture toughness inferred from the field data is 1-3...

Fracking is a type of drilling technique that involves fracturing rock deep underground in order to extract shale gas - a natural fuel that is trapped within shale formations. Energy firms will drill vertically down into the ground at between 6,000ft and 10,000ft, and then horizontally by more than a mile.

Read Will Fracking Help Address the Renewables Energy Storage Problem? and the latest news and updates in the oil and gas industry from Shale Directories. +1 (610) 764-1232; Home; Business Listings. Marcellus; Utica; Permian; ... It turns out lithium can easily be obtained by reclaiming the minerals in fracking wastewater! Tow companies, Eureka ...

The development of shale gas involves two critical processes including fracturing and transportation. To realize reticular fractures in the shale layer of multi-phase under more than 2000 m subjected to complex geo-stress and to collect the free and adsorbed gases encapsulated in the layer, we face many key mechanical challenges to be addressed. There are ...

Shale gas is an important unconventional oil and gas resource, which is rich in organic matter that is adsorbed in fractures and matrix pores (Chen et al. 2021). The shale gas exploration and development in the Sichuan Basin has begun since 2009, and shows a great reserve potential with a resource of 1.94 $\times 10^{13}$ m³. The Changing national shale gas ...

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