
Coal Mine solar container battery

Can old coal mines be converted into gravity batteries?

Old coal mines can be converted into "gravity batteries" by retrofitting them with equipment that raises and lowers giant piles of sand. Underground Gravity Energy Storage system: A schematic of different system sections. (Credit: JD Hunt et al., Energies, 2023)

Could underground gravity energy storage repurpose old mines?

An international team of scientists recently proposed another innovative and resourceful solution that involves repurposing old mines: Underground Gravity Energy Storage (UGES). They outlined the idea in the journal Energies. UGES involves lowering large amounts of sand stored in containers attached to a central cable down a deep underground shaft.

What is underground gravity energy storage (UGES)?

Lithium-ion batteries and pumped hydroelectric do the brunt of this energy storage work now, and are expected to dominate in the future, along with hydrogen fuel cells. An international team of scientists recently proposed another innovative and resourceful solution that involves repurposing old mines: Underground Gravity Energy Storage (UGES).

How much would a deeper mine cost compared to a lithium-ion battery?

A deeper mine would not only produce and store more energy, but would also be more cost effective. Energy storage costs vary from \$1 to \$10 per kilowatt-hour for UGES, the authors calculate, downright cheap compared to lithium-ion batteries, which currently cost about \$150/kWh. Battery prices continue to fall as chemistries improve, however.

Using "gravity batteries," these underground facilities aim to tackle one of renewable energy's greatest challenges: storage. The method is simple: Excess renewable ...

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Old coal mines can be converted into "gravity batteries" by retrofitting them with equipment that raises and lowers giant piles of sand.

Reasons to be Cheerful explains how "gravity batteries" are giving former mines a second life--while offering an economic and environmental boost to communities once reliant

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A U.S. coal firm will convert former mining sites in Illinois and Indiana into solar energy and battery storage installations.

The Energy Storage Revolution: A \$33 Billion Game-Changer Energy storage isn't just a buzzword--it's a \$33 billion global industry generating 100 gigawatt-hours annually [1]. From ...

Energy Shift Breathes Life Into Old Mines From Europe to North America, former coal mines

are transforming into renewable energy storage sites. These abandoned shafts now serve as

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