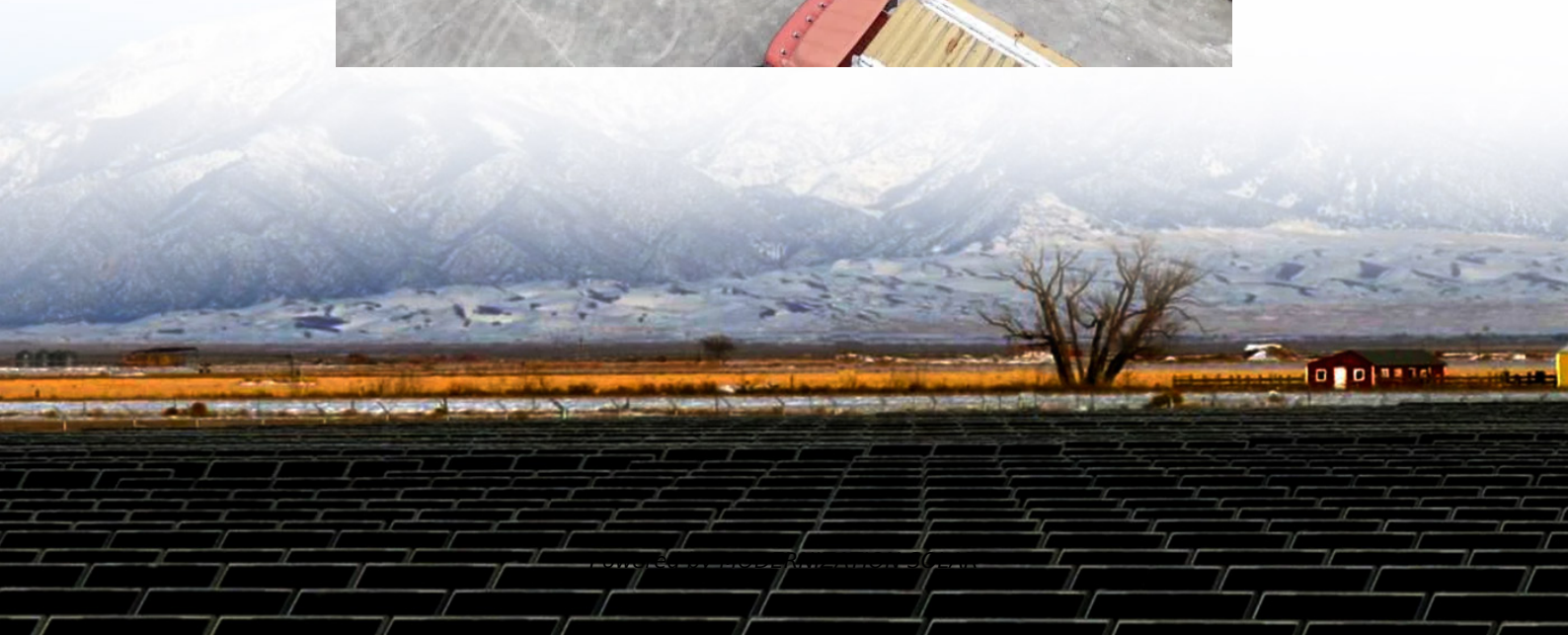


Castries coal mine solar container battery





Overview

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.

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.



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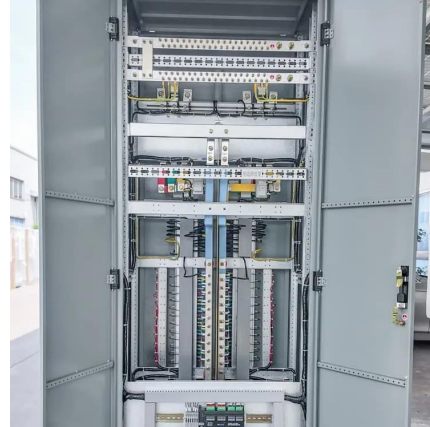
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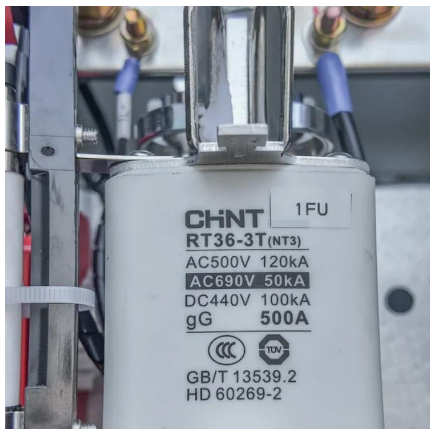
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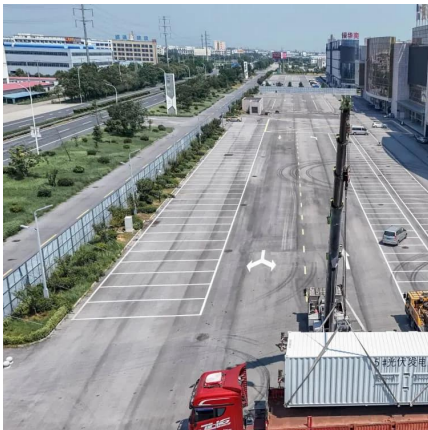
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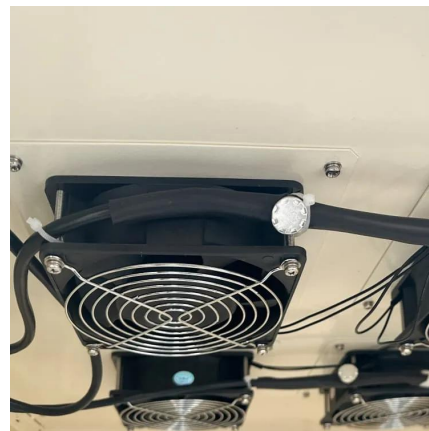
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