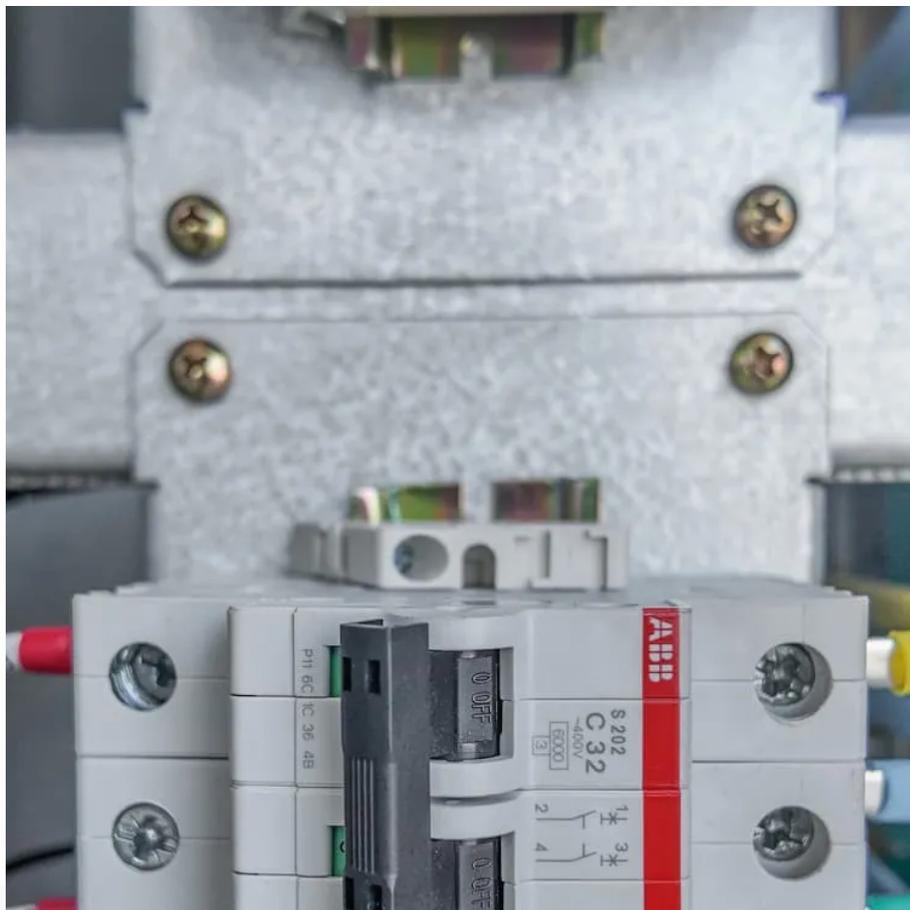


Ultra-high efficiency energy storage containers for tunnels





Overview

Can underground tunnels be used as heat exchangers?

This paper presents an unprecedented investigation of the thermal energy storage potential of underground tunnels used as heat exchangers, often called energy tunnels, with a focus on seasonal, medium-temperature thermal energy storage applications. The study is divided into two parts.

What is a single-unit modular energy storage container?

Compared to traditional 20/40-foot metal energy storage containers, our single-unit modular design offers greater space flexibility, enhances space utilization efficiency, and reduces asset risks during disasters. Our containers come in different specifications, making them suitable for various indoor and outdoor energy storage needs.

Can energy tunnels store thermal energy?

This study indicates storage efficiencies of energy tunnels of up to about 70%. Therefore, energy tunnels have marked potential to store massive amounts of thermal energy in the shallow subsurface for subsequent reuse.

Why are energy tunnels important?

A significant feature of energy tunnels, similar to other underground infrastructures, is that they are characterized by a relatively low surface-area-to-volume ratio [, ,] - a valuable attribute for the effective storage of thermal energy.



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