

Yerevan coal-to-electricity energy storage device





Overview

Can coal power plants be converted into energy storage and zero-carbon data centers?

This paper investigates a retrofitting strategy that turns coal power plants into thermal energy storage (TES) and zero-carbon data centers (DCs). The proposed capacity expansion model considers the co-locations of DCs, local renewable generation, and energy storage with the system-level coal retirement and retrofitting.

Are energy storage technologies a viable solution for coal-fired power plants?

Energy storage technologies offer a viable solution to provide better flexibility against load fluctuations and reduce the carbon footprint of coal-fired power plants by minimizing exergy losses, thereby achieving better energy efficiency.

How can coal power plants be repurposed?

Retrofitting coal power plants provides a cost-saving solution by reusing the existing infrastructure and interconnections. They can be repurposed into thermal energy storage (TES), nuclear reactors, and data centers (DCs). These projects could significantly reduce carbon footprint and facilitate renewable energy integration.

Can energy storage systems be integrated with fossil power plants?

Several studies have been reported in the literature, particularly on power plant system modeling, and integration of sensible and latent heat-based energy storage systems with fossil power cycles. Liquid air energy storage (LAES) is another form of energy storage that has been proposed for integration with fossil power plants.



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National yerevan energy storage power station W

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