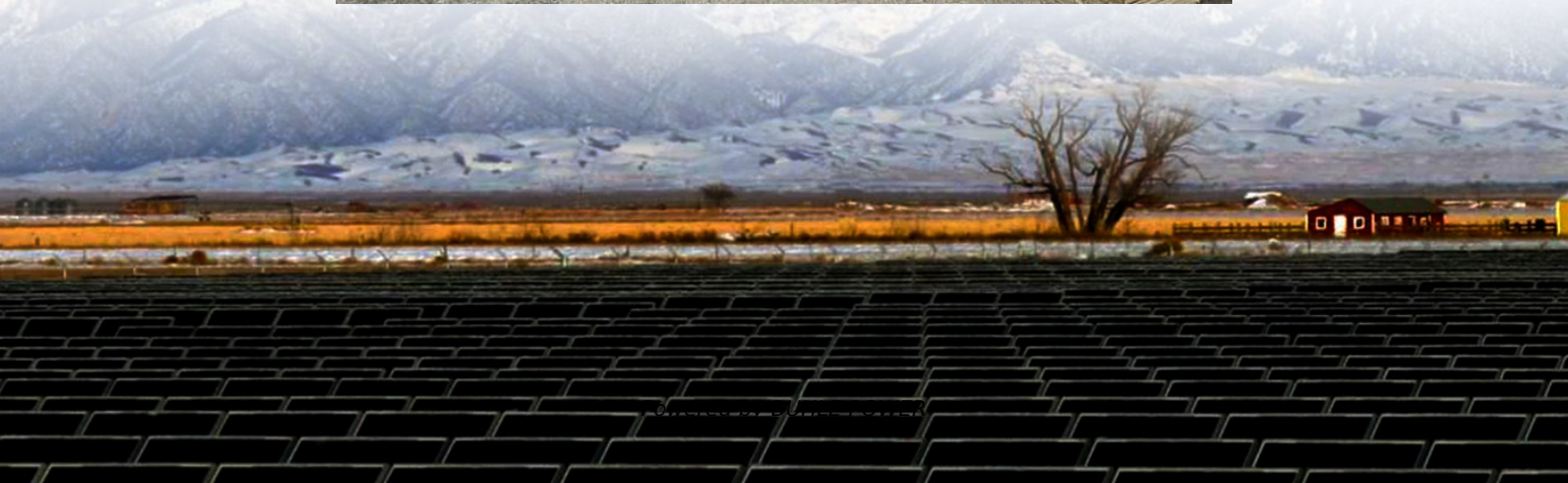


Mobile energy storage containers for bidirectional charging at train stations





Overview

Here the authors explore the potential role that rail-based mobile energy storage could play in providing back-up to the US electricity grid.

Can unidirectional and bidirectional charging be integrated into a hybrid energy storage system?

In the case of bidirectional charging, EVs can even function as mobile, flexible storage systems that can be integrated into the grid. This paper introduces a novel testing environment that integrates unidirectional and bidirectional charging infrastructures into an existing hybrid energy storage system.

Can rail-based mobile energy storage help the grid?

In this Article, we estimate the ability of rail-based mobile energy storage (RMES)—mobile containerized batteries, transported by rail among US power sector regions—to aid the grid in withstanding and recovering from high-impact, low-frequency events.

Can a stationary hybrid storage system provide unidirectional and bidirectional charging infrastructures?

This work presents a combination of a stationary hybrid storage system with unidirectional and bidirectional charging infrastructures for electric vehicles.

What is a bi-directional charging system?

This shift is made possible by the cutting-edge bi-directional charging technology. Bi-directional charging allows EVs to function as mobile energy storage units. Equipped with this technology, EVs can not only draw power from the grid but also return electricity to it, or supply power to homes during peak demand or in the event of blackouts.



Mobile energy storage containers for bidirectional charging at train

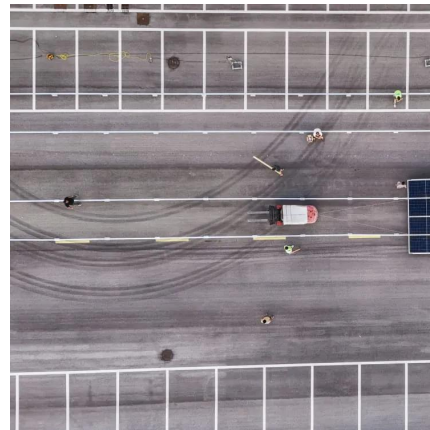


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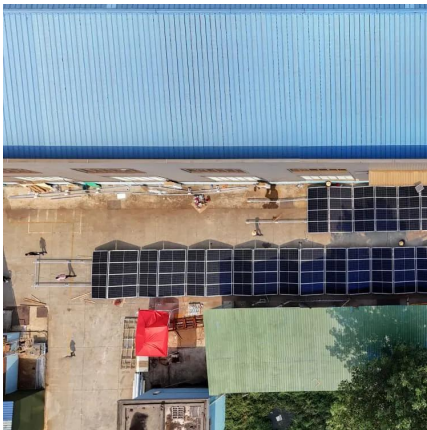
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