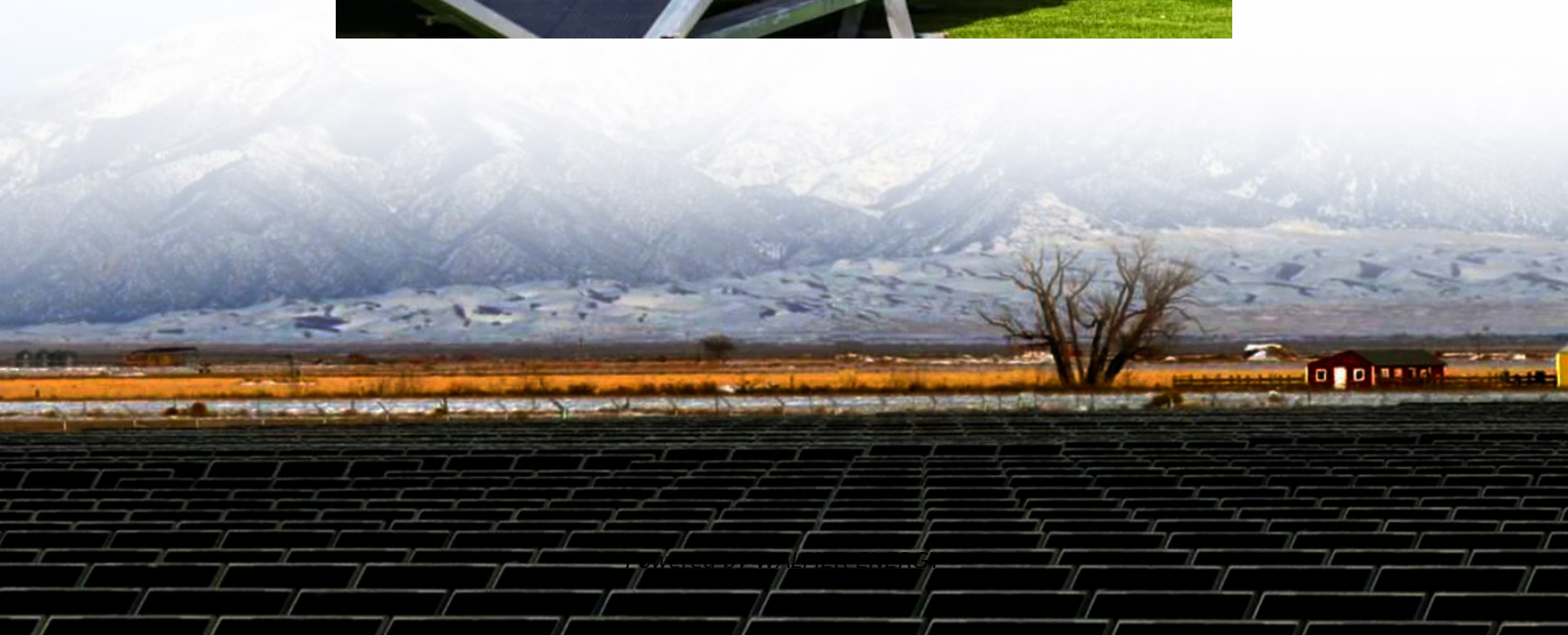


Iodine flow battery life





Overview

Are zinc-iodine flow batteries safe?

Learn more. The growing demand for grid-scale energy storage calls for safe and low-cost solutions, for which zinc-iodine flow batteries (ZIFBs) are highly promising. However, their practical application is critically hindered by two issues: accumulation of insoluble solid iodine at the cathode and zinc dendrite growth at the anode.

Are aqueous zinc-iodine flow batteries suitable for large-scale storage?

Aqueous zinc-iodine flow batteries show potential in large-scale storage but face water imbalance-induced instability. Here, authors develop a tailored ionic-molecular sieve membrane that selectively intercepts hydrated ions, enabling stable high-capacity long cycling with low projected costs.

What is a zinc iodine flow battery (zifb)?

A zinc-iodine flow battery (ZIFB) with long cycle life, high energy, high power density, and self-healing behavior is prepared. The long cycle life was achieved by employing a low-cost porous polyolefin membrane and stable electrolytes. The pores in the membrane can be filled with a solution containing I_3^- that can react with zinc dendrite.

How iodine is used in a battery?

For example, in flow batteries, the generated I_2 needs to be converted into a highly soluble I_3^- to avoid the deposition of elemental iodine on the electrode surface and block the electrolyte transport pathway, but in static batteries, the positive electrodes generally have strong adsorption to confine iodine to avoid shuttle effect.



Iodine flow battery life

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