

# Zinc-bromine flow battery mass production





## Overview

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Are zinc-bromine flow batteries suitable for large-scale energy storage?

Zinc-bromine flow batteries (ZBFs) offer great potential for large-scale energy storage owing to the inherent high energy density and low cost. However, practical applications of this technology are hindered by low power density and short cycle life, mainly due to large polarization and non-uniform zinc deposition.

What are zinc-bromine flow batteries?

In particular, zinc-bromine flow batteries (ZBFs) have attracted considerable interest due to the high theoretical energy density of up to 440 Wh kg<sup>-1</sup> and use of low-cost and abundant active materials [10, 11].

Are aqueous zinc-bromine flow batteries reversible?

Aqueous zinc-bromine flow batteries show promise for grid storage but suffer from zinc dendrite growth and hydrogen evolution reaction. Here, authors develop a reversible carbon felt electrode with Pb nanoparticles to suppress these issues, improving battery performance and cycle stability.

Does PNSC increase ion diffusion rate in zinc-bromine flow batteries?

In addition, the highly porous (~2085 m<sup>2</sup>/g) PNSC substantially increased the ion diffusion rate within the electrode framework which led the voltage efficiency of 83 % and energy efficiency of 82 % at 80 mA cm<sup>-2</sup>. TABLE 2. Comparison of carbon-based electrode materials for Zinc-bromine flow batteries.



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