

Factors affecting the cost of flow batteries





Overview

How can flow battery research reduce costs?

Standardization of flow battery components and the development of high-voltage chemistries are highlighted as paths towards decreasing costs and achieving greater market penetration. Electrolyte tank costs are often assumed insignificant in flow battery research.

Can flow battery systems meet the cost target?

In total, nine conventional and emerging flow battery systems are evaluated based on aqueous and non-aqueous electrolytes using existing architectures. This analysis is attempted to evaluate the feasibility of these emerging systems to meet the cost target and to predict their technological prospects for energy storage applications.

Are flow batteries worth it?

While this might appear steep at first, over time, flow batteries can deliver value due to their longevity and scalability. Operational expenditures (OPEX), on the other hand, are ongoing costs associated with the use of the battery. This includes maintenance, replacement parts, and energy costs for operation.

How is cost distribution determined in a flow battery system?

The cost distribution by battery component is determined to highlight the major cost drivers in battery systems. Lastly, uncertainty due to price variability is evaluated. For the TEA model, data on the prices of key materials used in the flow battery systems are required.



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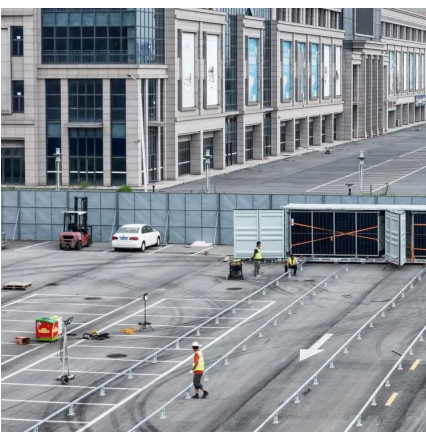


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Vanadium Pentoxide Flow Battery
Zinc-Bromide Flow Battery
All-Iron Flow Battery
The material costs and the associated distribution by component for the ZBFB system are provided in Table 2 and Fig. 3. The power capacity components comprise the largest share of total material costs as the cell stack accounts for 33% of the total material cost. The electrolyte and the bipolar plate are identified as material cost drivers, as they See more on [link.springer hj-tower](https://link.springer.com/hj-tower)

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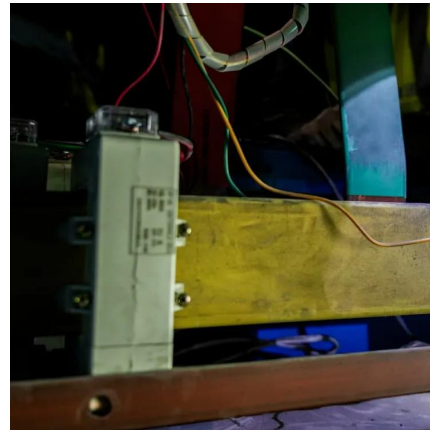
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