WALMER ENERGY

Cost ratio of each component of flow battery

Overview

Redox flow battery (RFB) is a promising technology to store large amounts of energies in liquid electrolytes attributable to their unique architectures. In recent years, various new chemistries have been introd.

What is the capital cost of flow battery?

The capital cost of flow battery includes the cost components of cell stacks (electrodes, membranes, gaskets and bolts), electrolytes (active materials, salts, solvents, bromine sequestration agents), balance of plant (BOP) (tanks, pumps, heat exchangers, condensers and rebalance cells) and power conversion system (PCS).

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.

How do you calculate the cost of a flow battery?

Electrode materials includes bipolar plates, end-plates and graphite felts. The total costs of flow battery (C RFB) are expressed in terms of $ (kW h) −1 through dividing the costs of all these components (Cstack, Celectrolytes, CBOP and CPCS) by the required energies of the applications (Etotal = P × tdischarge, where P = Vdischarge × tdischarge).

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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