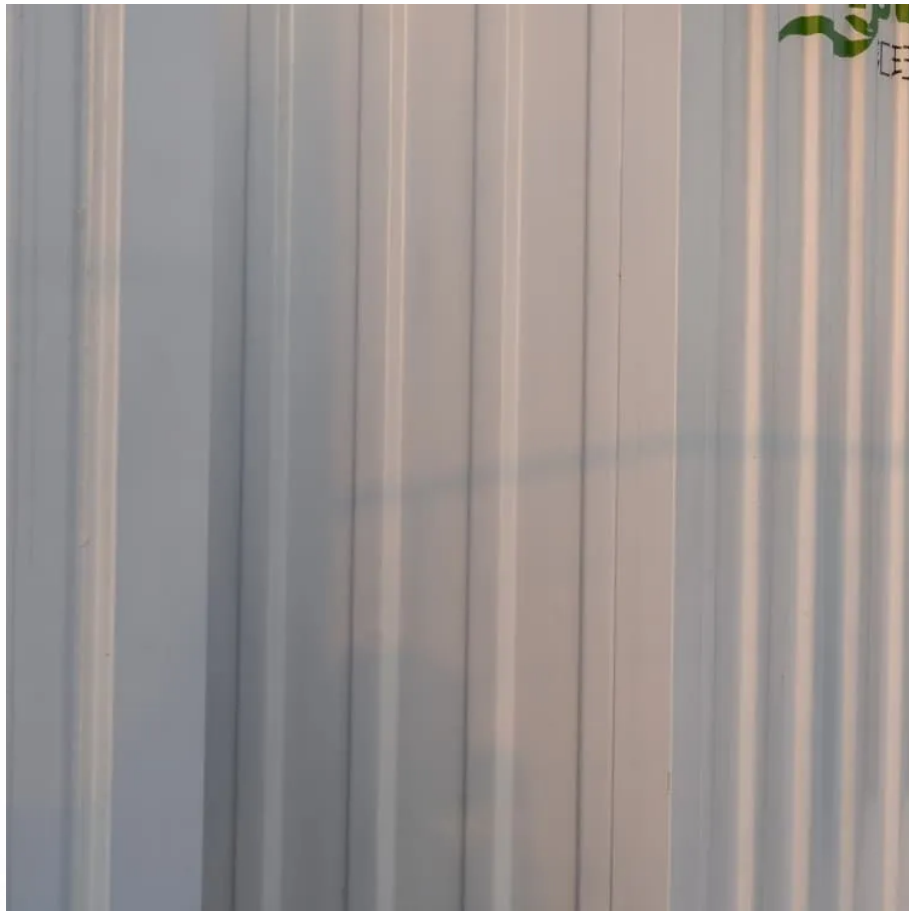


Basic structure of flow battery





Overview

The core of a flow battery system consists of four primary components: two external storage tanks, a central electrochemical cell stack, an ion-exchange membrane, and a set of pumps and plumbing. What are the components of a flow battery?

Flow batteries comprise two components: Electrochemical cell Conversion between chemical and electrical energy External electrolyte storage tanks Energy storage Source: EPRI K. Webb ESE 471 5 Flow Battery Electrochemical Cell Electrochemical cell Two half-cells separated by a proton-exchange membrane (PEM).

What is a flow battery?

K. Webb ESE 471 3 Flow Batteries Flow batteries are electrochemical cells, in which the reacting substances are stored in electrolyte solutions external to the battery cell Electrolytes are pumped through the cells Electrolytes flow across the electrodes.

What is a true flow battery?

True flow batteries have all the reactants and products of the electro-active chemicals stored external to the power conversion device. Systems in which all the electro-active materials are dissolved in a liquid electrolyte are called redox (for reduction/oxidation) flow batteries.

What are the characteristics and benefits of flow batteries?

The major characteristic and benefit flow batteries is the decoupling by design of power and energy. Power is determined by the size and number of cells, energy by the amount of electrolyte. Their low energy density makes flow batteries unsuited for mobile or residential applications, but attractive on industrial and utility scale.



Basic structure of flow battery

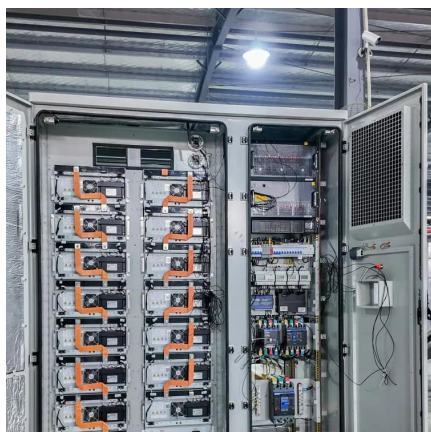


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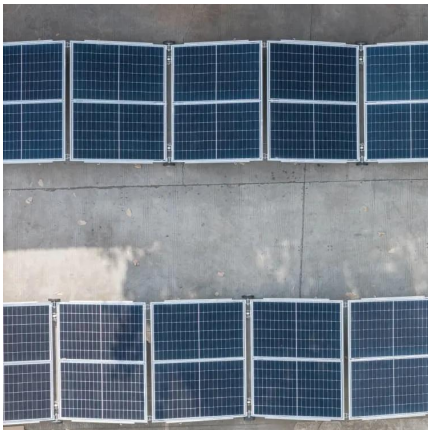
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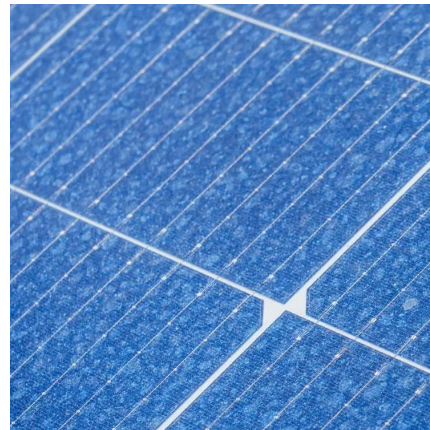
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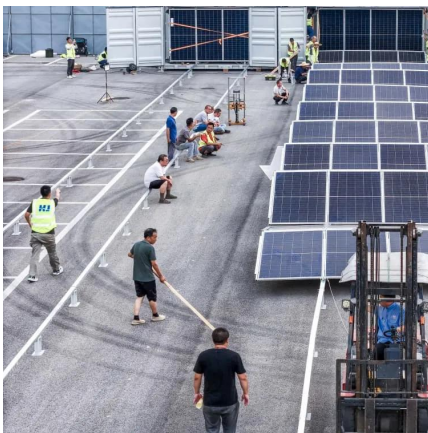
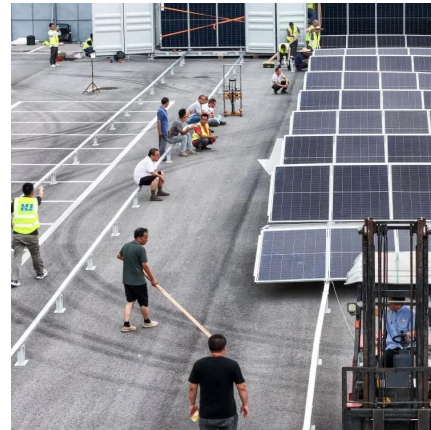
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