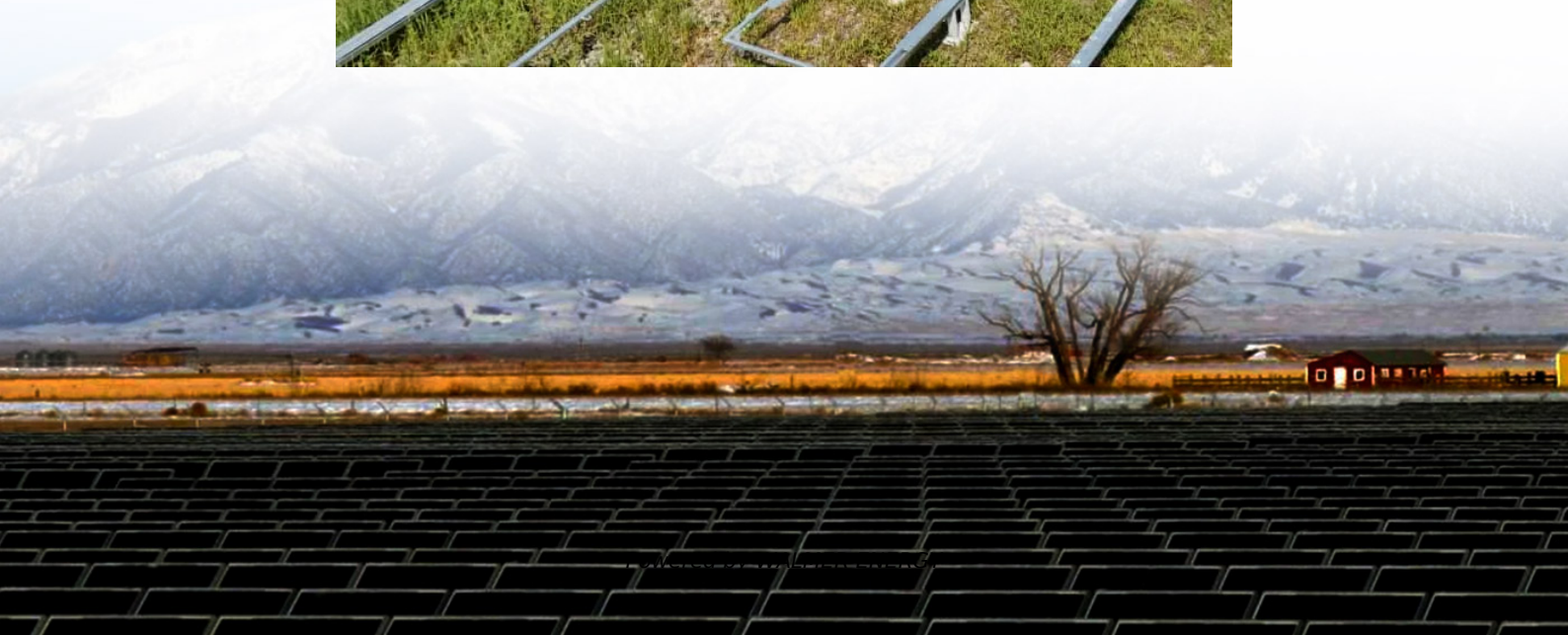


# Characteristics of non-chemical energy storage batteries





## Overview

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What is a rechargeable battery system?

The existing and emerging electrochemical rechargeable battery systems. Lead-acid batteries are the conventional secondary batteries and are the first type of battery system used for energy storage applications. Research corroborates that lead-acid batteries have the robust operation, simple control, and a lower cost than other primary batteries.

Are battery energy-storage technologies necessary for grid-scale energy storage?

The rise in renewable energy utilization is increasing demand for battery energy-storage technologies (BESTs). BESTs based on lithium-ion batteries are being developed and deployed. However, this technology alone does not meet all the requirements for grid-scale energy storage.

What types of battery technologies are being developed for grid-scale energy storage?

In this Review, we describe BESTs being developed for grid-scale energy storage, including high-energy, aqueous, redox flow, high-temperature and gas batteries. Battery technologies support various power system services, including providing grid support services and preventing curtailment.

What are battery energy storage systems?

Battery energy-storage systems typically include batteries, battery-management systems, power-conversion systems and energy-management systems 21 (Fig. 2b).



## Characteristics of non-chemical energy storage batteries

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