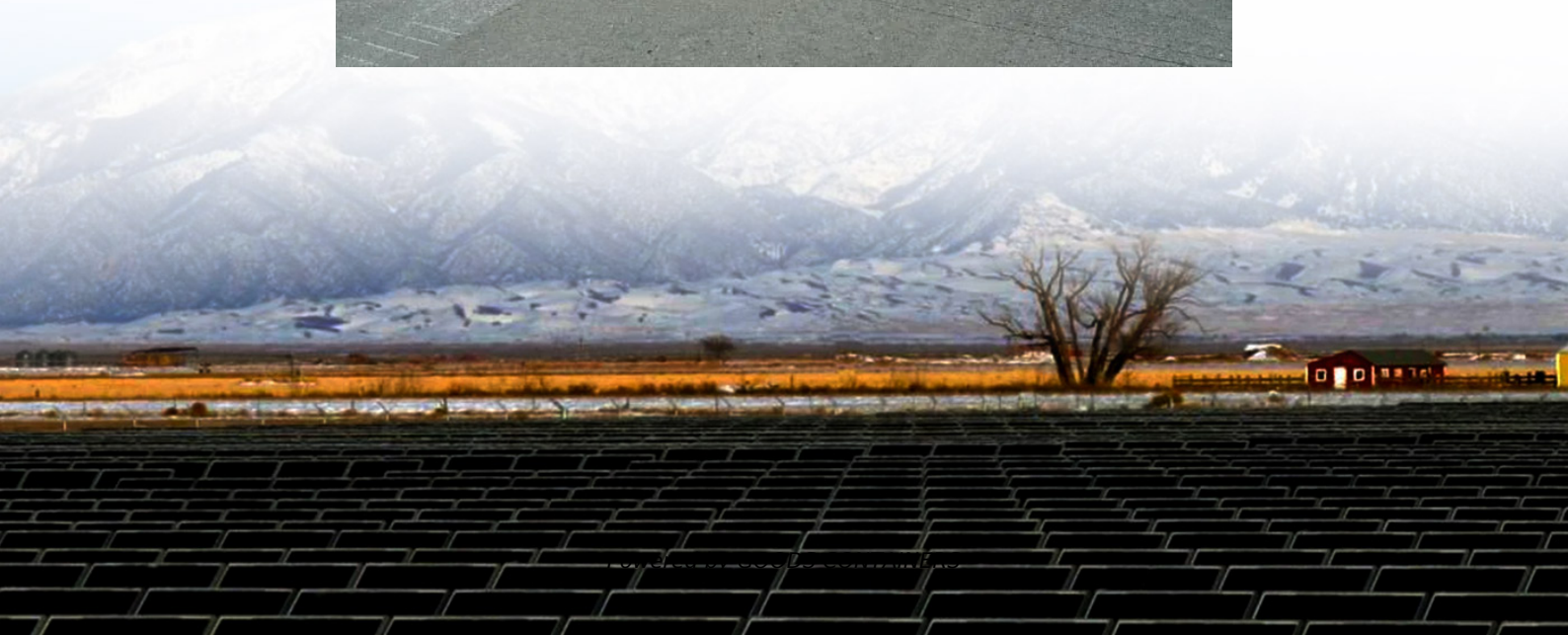


# The ratio of components and energy storage batteries





## Overview

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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).

What is the value of specific energy in a rechargeable battery?

Due to the presence of inactive components in the battery such as grids, separators, cell containers, etc., the actual value of specific energy is quite low. Due to presence of heavy electrodes and other components, value is approximately 25% of the theoretical value in case of rechargeable batteries (19).

What is the difference between photovoltaic solar cells and rechargeable batteries?

In Photovoltaic solar cells, there is direct conversion of solar energy into electric energy. This energy is transferred directly to energy clients for usage, without being stored. However, in the rechargeable batteries like inverters covert electric energy into the chemical energy that can be stored for further use.

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.



## The ratio of components and energy storage batteries

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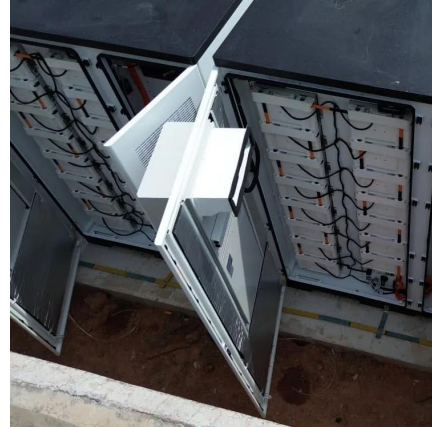
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