





What are flexible energy storage devices (fesds)? Consequently, there is an urgent demand for flexible energy storage devices (FESDs) to cater to the energy storage needs of various forms of flexible products. FESDs can be classified into three categories based on spatial dimension, all of which share the features of excellent electrochemical performance, reliable safety, and superb flexibility.





Why do we need flexible energy storage devices? Given the escalating demand for wearable electronics, there is an urgent need to explore cost-effective and environmentally friendly flexible energy storage devices with exceptional electrochemical properties.





What is the research focus of flexible energy storage devices? (2) Currently, the research focus in the field of flexible energy storage devices primarily lies in the development of novel electrode materials, often overlooking other crucial components such as electrolytes, separators, and current collectors.





Can energy storage materials shift to sustainable and flexible components? However, most of these power sources use plastic substrates for their manufacture. Hence, this review is focused on research attempts to shift energy storage materials toward sustainable and flexible components.

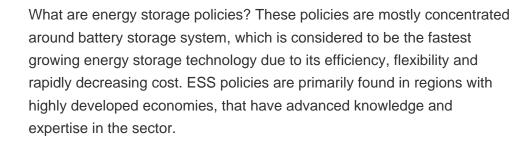




Do flexible energy storage devices integrate mechanical and electrochemical performance? However, the existing types of flexible energy storage devices encounter challenges in effectively integrating mechanical and electrochemical performances.









In this review, we review the design, synthesis strategies, and recent advances of electrode and electrolyte materials for various flexible energy storage devices (Fig. 2). The review begins ???



The traditional energy storage devices are mainly made of brittle materials, not suitable for flexible electronic products [6], [7]. Taking the traditional lithium-ion battery (LIB) as ???



First, it summarizes the developing status of energy storage industry in China. Then, this paper analyzes the existing problems of China's energy storage industry from the ???



Flexible energy-storage devices are attracting increasing attention as they show unique promising advantages, such as flexibility, shape diversity, light weight, and so on; these properties enable applications in portable, ???





With the increasing interest in wearable smart electronics, flexible energy storage devices, particularly the safe and fast-charge flexible supercapacitors (FSCs), are greatly stimulated in ???



The abovementioned characteristics can be attained by manipulating polymer chains and chemical structures and advancing flexible energy storage devices with remarkable ???



However, the existing types of flexible energy storage devices encounter challenges in effectively integrating mechanical and electrochemical performances. This review is intended to provide strategies for the design of ???





With the growing market of wearable devices for smart sensing and personalized healthcare applications, energy storage devices that ensure stable power supply and can be constructed in flexible platforms have ???





In recent years, the growing demand for increasingly advanced wearable electronic gadgets has been commonly observed. Modern society is constantly expecting a noticeable development in terms of smart functions, ???





Hence, this review is focused on research attempts to shift energy storage materials toward sustainable and flexible components. We would like to introduce recent scientific achievements in the application of noncellulosic ???



Given the advancements in modern living standards and technological development, conventional smart devices have proven inadequate in meeting the demands for a high-quality lifestyle. Therefore, a revolution is ???



Consequently, there is an urgent demand for flexible energy storage devices (FESDs) to cater to the energy storage needs of various forms of flexible products. FESDs can be classified into three categories based on spatial ???