

Is energy storage an equity asset?

Tarekegne, B., O'Neil, R. & Twitchell, J. Energy storage as an equity asset. *Curr. Sustain. Renew. Energy Rep.* 8, 149-155 (2021). Zhu, S., Mac Kinnon, M., Carlos-Carlos, A., Davis, S. J. & Samuelsen, S. Decarbonization will lead to more equitable air quality in California. *Nat. Commun.* 13, 5738 (2022).

Does capacity expansion modelling account for energy storage in energy-system decarbonization?

Capacity expansion modelling (CEM) approaches need to account for the value of energy storage in energy-system decarbonization. A new Review considers the representation of energy storage in the CEM literature and identifies approaches to overcome the challenges such approaches face when it comes to better informing policy and investment decisions.

How will energy storage help meet global decarbonization goals?

To meet ambitious global decarbonization goals, electricity system planning and operations will change fundamentally. With increasing reliance on variable renewable energy resources, energy storage is likely to play a critical accompanying role to help balance generation and consumption patterns.

Electric energy storage technologies play an essential role in advanced electronics and electrical power systems 1,2,3,4,5. Many advanced electrical devices call for energy storage with ...

Apart from high energy storage property, good strength, low cost, and flexible hydrogel electrolytes are endowed additional functions (e.g., stretchability, self-healing ability, and adaptability to complicated working environments) to meet the demands of smart electronics [115, 116]. Selecting and designing suitable functional and smart ...

Aniu Qian, Yiwei Pang, Guangyu Wang, Yuehui Hao, Yiming Liu, Hu Shi\*, Chan-Hwa Chung,\* Zhiping Du, and Fangqin Cheng\*. Pseudocapacitive Charge Storage in MXene-V<sub>2</sub>O<sub>5</sub> for Asymmetric Flexible Energy Storage Devices. *ACS Appl. Mater. Interfaces* 2020, 12, 54791-54797. 7. Hu Shi\*, Hao Li, Wenlong Gong, Ruiting Gong, Aniu Qian, Jin Yong Lee\* and ...

With the increased energy demand, developing renewable and clean energy technologies becomes more and more significant to mitigate climate warming and alleviate the environmental pollution. The key point is design and synthesis of low cost and efficient materials for a wide variety of electrochemical reactions. Over the past ten years, two-dimensional(2D) ...

The large-scale development of energy storage began around 2000. From 2000 to 2010, energy storage technology was developed in the laboratory. Electrochemical energy storage is the focus of research in this period. From 2011 to 2015, energy storage technology gradually matured and entered the demonstration application stage.

The integration of new-generation digital technologies across various sectors catalyzes the formation of digital supply chain systems (Yang et al., 2021). Leveraging big data and network platforms, these technologies have revolutionized supply chain operations by enhancing information visualization and sharing at every stage.

Flexible lithium-ion batteries (LIBs) can be seamlessly integrated into flexible devices, such as flexible displays, wearable devices, and smart cards, to provide power for steady operation under mechanical deformation. An ideal flexible battery should have high flexibility, high energy density, and high power density simultaneously, which are often in conflict with each ...

Electrochemical CO<sub>2</sub> reduction is a promising approach for converting CO<sub>2</sub> to value-added fuels and chemicals by using renewable electricity [1]. This process can store energy from intermittent resources in a sustainable manner and lead to an eco-friendly carbon-neutral cycle [[2], [3], [4]]. The CO<sub>2</sub> reduction reaction (CRR) is complex in nature with a wide variety ...

Energy storage in dielectrics is realized via dielectric polarization  $P$  in an external electric field  $E$ , with the energy density  $U_e$  determined by  $\int P_r P_m E dP$ , where  $P_m$  and  $P_r$  are the maximum polarization in the charging process and remnant polarization in the discharging process, respectively (fig. S1) ().  $P_r$  manifests itself as the P-E hysteresis, which ...

Thermal energy storage technologies utilizing phase change materials (PCMs) that melt in the intermediate temperature range, between 100 and 220 °C, have the potential to mitigate the intermittency issues of wind and solar energy. This technology can take thermal or electrical energy from renewable sources and store it in the form of heat. This is of particular ...

Electrochemical energy conversion and storage are central to developing future renewable energy systems. For efficient energy utilization, both the performance and stability of electrochemical systems should be optimized in terms of the electrochemical interface. To achieve this goal, it is imperative to understand how a tailored electrode structure and electrolyte speciation can ...

The traditional energy storage devices with large size, heavy weight and mechanical inflexibility are difficult to be applied in the high-efficiency and eco-friendly energy conversion system. 33,34 The electrochemical performances ...

MXenes, as an emerging family of conductive two-dimensional materials, hold promise for late-model electrode materials in Li-ion batteries. A primary challenge hindering the development of MXenes as electrode materials is that a complete understanding of the intrinsic storage mechanism underlying the charge/discharge behavior remains elusive. This article ...

To our knowledge, there is no report on the effect of HEC on the energy storage properties for RFEs. In this work, a new HEC Bi(Zn<sub>0.2</sub> Mg<sub>0.2</sub> Al<sub>0.2</sub> Sn<sub>0.2</sub> Zr<sub>0.2</sub>)O<sub>3</sub> (BZMASZ) have been introduced into the

widely-studied BaTiO<sub>3</sub>-Na<sub>0.5</sub>Bi<sub>0.5</sub>TiO<sub>3</sub> (0.75BT-0.25NBT) FE ceramics to form a solid solution [31], [32], [33] paired with the binary systems, such like ...

Read the latest articles of Journal of Energy Storage at ScienceDirect , Elsevier's leading platform of peer-reviewed scholarly literature ... Chuanbo Xu, Xueyan Wu, Zijing Shan, Qichun Zhang, ... Chaofan Shi. Article 111107 View PDF. Article preview. select article Heterostructured and multi-dimensional Ni-Co tellurides/NiTe with enhanced ...

The role of underground salt caverns for large-scale energy storage: A review and prospects ... Qihang Li a 1, Chunhe Yang b, Xilin Shi b, Jifang Wan c, Maria Jose Jurado d, Yiping Li b, Deyi Jiang a, Jie Chen a, Weibiao Qiao e ... France is the first country in the world to establish an enterprise oil storage system. It has four oil storage ...

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