Background analysis of energy storage patents

Is there a patent landscape analysis of grid-connected Lib energy storage systems?
Nevertheless,nosimilar patent landscape analysis was discovered to have been carried out in the field of grid-connected LIB ESS. The goal of this study is to extract the important aspects of the publications with the most citations and to provide insight into the assessment of grid-connected LIB energy storage systems. 3.1.

Are grid-connected Lib storage patents a trending topic?
This study investigated grid-connected LIB storage patents to comprehend the market. Bibliographic and technological analysis were presented on the patent growth trends. Patent search trending topic on LIB explores grid stability and energy management system. This study identifies and evaluates the possibilities on LIB's future research trend.

How fast do batteries & electricity storage technology develop?
It reveals that between 2005 and 2018,patenting activity in batteries and other electricity storage technologies grew at an average annual rate of 14% worldwide,four times faster than the average of all technology fields. Innovation in Batteries and Electricity Storage - Analysis and key findings. A report by the International Energy Agency.

How to find the patent documents related to the battery internal system?
The patent documents related to the battery internal system and battery integration system are only considered for the analysis. Initially,a search using the keywords is conducted on the Lens websiteand in the step-by-step searching,the most relevant patent documents are found.

What is patent landscape analysis?
Patent landscape review is a widespread method to analyse the current trends of research, innovations and patenting trends as well as the policies related to the ongoing energy transition . Patent landscape analysis gives significant technological insights to researchers and innovators to develop new alternatives to practical challenges.

What is a lens patent database?
The Lens is a publicly available patent databasewhich provides access to 142.5 million patent records from over 95 jurisdictions . A through search using different keywords are conducted on the Lens website to obtain the key patents in the field of grid-connected LIB from the year 1998 to 2022.

Moreover, this paper also proposed the evaluation method of large-scale energy storage technology and conducted a comparative analysis of solid gravity energy storage with other large-scale energy ...

The speed of response of an energy storage system is a metric of how quickly it can respond to a demand

signal in order to move from a standby state to full output or input power. The power output of a gravitational energy storage system is linked to the velocity of the weight, as shown in equation (5.8). Therefore, the speed of response is ...

Energy storage makes a critical contribution to the energy security of current energy networks. Today, much energy is stored in the form of raw or refined hydrocarbons, whether as coal heaps or oil and gas reserves. Since energy storage is far more efficient, power precursors are stored instead of electricity, and demand for generation varies.

This joint study by the International Energy Agency and European Patent Office underlines the key role that battery innovation is playing in the transition to clean energy technologies. It provides global data and ...

Thermo-mechanical energy storage can be a cost-effective solution to provide flexibility and balance highly renewable energy systems. Here, we present a concise review of emerging thermo-mechanical energy storage solutions focusing on their commercial development. Under a unified framework, we review technologies that have proven to work conceptually ...

Our analysis shows an overall positive trend in storage patents, indicating its growing importance in the electricity sector. Most innovation is directed at improving batteries which have been the main electrical energy storage vessel used in the last decades. ... As the distribution of patent applications in section 3 shows, most patent ...

The world"s energy demand has significantly increased as a result of the growing population and accompanying rise in energy usage. Fortunately, the innovation of nanomaterials (NMs) and their corresponding processing into devices and electrodes could enhance the functionality and/or advancement of the current battery energy storage systems (BESSs). Patent landscape ...

Large amounts of CO2 from human socioeconomic activities threaten environmental sustainability. Moreover, uncontrolled resource use and lack of relevant technology exacerbate this issue. For this reason, carbon capture, utilization, and storage (CCUS) technology has gained worldwide attention. Many scholars have researched CCUS, but few have used ...

Described in this patent application are devices for energy storage and methods of making and using such devices. In various embodiments, blocking layers are provided between dielectric material and the electrodes of an energy storage device. The block layers are characterized by higher dielectric constant than the dielectric material.

This analysis is carried out using patent database search tools IncoPat and Espacenet. Patent documents are retrieved between the time span ranging from 2006 to 2018. According to research findings, the number of ...

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Energy storage systems are required to adapt to the location area"s environment. Self-discharge rate: Less important: The core value of large-scale energy storage is energy management, which inevitably requires energy time-shifting, time-shifting, and self-discharge rate directly affecting the efficiency. Response time: Normal

Firstly, a detailed patent bibliometric analysis including patent growth trends, keyword analysis, patent distribution over jurisdiction, and subject categories was presented. ...

An example flywheel energy storage device includes a fiber-resin composite shell having an elliptical ovoid shape. ... This application claims the priority filing benefit as a continuation of U.S. patent application Ser. No. 15/929,939 filed May 29, 2020 for "Catenary Flywheel Kinetic Battery" of James B. Clegern, which claims the priority ...

The status quo of the global CO 2 storage and utilization patent market. a. Development trend of the CO 2 storage and utilization patent in the globe and major countries (regions); b. Spatial distribution of global CO 2 storage and utilization patent market.

Aimed at decision-makers in both the private and public sectors, this report is a unique source of intelligence on the innovation trends across the energy system, in particular low-carbon energy (LCE) technologies. It draws ...

The main countries and regions of patents that accepted gravity energy storage technology patents are shown in Fig. 2(a). The figure clearly illustrates, China is the most important target market for gravity energy storage tech-nology, accounting for 60% of the total number of the global gravity energy storage technology patents.

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