



The most energy storage patents

Are patents filed for energy storage technologies reflected in the data?

Patents filed for energy storage technologies - Our World in Data Figures in recent years are subject to a time lag; submitted patents may not yet be reflected in the data. Figures in recent years are subject to a time lag; submitted patents may not yet be reflected in the data. Our World in Data Articles by topic Latest About Donate All charts

What are energy technology patents?

Patents provide early indications of technological developments that may transform the economy and drive the energy transition. The H2020 data portal has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 952363. Energy Technology Patents Data Explorer - Data tools.

How fast does patenting a battery grow?

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, according to a joint study published today by the European Patent Office (EPO) and the International Energy Agency (IEA).

Is electricity storage innovation tackling the energy transition?

"The rapid and sustained rise in electricity storage innovation shows that inventors and businesses are tackling the challenge of the energy transition.

Which country has the highest number of EV patents?

For patents under China's jurisdiction, the highest number of patents were published in the field of grid-connected ESS technology. In recent years, inventors from China focused on developing EV technologies with the integration of EMS and control strategy.

Is there a patent landscape analysis of grid-connected LIB energy storage systems?

Nevertheless, no similar 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.

Companies with Energy Storage Patents "The intellectual capital developed with VTO funding was found to have a broad influence with knowledge spillover in multiple application areas." BCE Report p. 7-3 VTO Ranks Second Among the Top Ten Companies in Total Citations . 13 0.00. 0.50. 1.00. 1.50. 2.00. 2.50. Toyota. LG Chem. Samsung.

and storage resulting from HFTO R& D funding* o In FY2017 the scope was expanded to include analysis of patent applications resulting from HFTO-funded R& D U.S. Patent data has been tracked from the inception



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of DOE activities in 1977 U.S. Patent application has been tracked since 2001 (1st year available online)

An energy storage system comprises a housing and a flywheel having a drive shaft portion attached to a cylindrical ferromagnetic rotor portion. The drive shaft portion defines a substantially vertical axis about which the rotor portion is mounted for rotation. A magnetic bearing assembly comprised of an annular permanent magnet having no electromagnetic components ...

Data on renewable energy patents. Data for the most recent years are not complete due to a lag between the filing date and the time at which the patents are officially ...

The Spotlight also showcases 21 individual energy storage patents available for licensing. To make the National Labs more accessible, the Lab Partnering Service provides energy investors direct, no-cost access to lab energy experts, project marketing summaries and the ability to use keyword searches to identify energy patents addressing their ...

The report covers three distinct technologies - fuel cells, hydrogen production, and hydrogen storage. These are considered to be separate technologies. 906 fuel cell patents are confirmed to be associated with HFTO funding (571 U.S. patents, 154 EPO patents, and 181 WIPO patents).

The range of sources of renewable energy requires a leap forward when it comes to innovation in energy storage and other enabling technologies that will help achieve the energy transition, ...

The present disclosure provides systems and methods for managing a temperature of a battery energy storage system ("BESS"). A method may comprise identifying operating temperature limitations of the BESS; obtaining a forecast horizon comprising a forecast of external environmental conditions for a time period; identifying a charging/discharging ...

The present invention provides a distributed energy storage system, and applications thereof. In an embodiment, the distributed energy storage system includes power units, wherein each power unit has a multi-cell battery; a battery manager that monitors battery cell voltages and temperatures; and a controller. The controller provides a first control signal that causes the ...

2009-04-25 Priority to US12/386,865 priority Critical patent/US7973420B2/en 2009-11-19 Publication of US20090284021A1 publication Critical patent/US20090284021A1/en ... Batteries are the most common form of energy storage. However, they are expensive to acquire and maintain, and involve risks of environmental damage. ...

The energy storage system 100 illustrates a sealed container including various components and features described herein. With reference to FIG. 1B, an explode view of the energy storage system 100 of FIG. 1a is illustrated. With reference to FIG. 1B, the energy storage system 100 includes a frame structure 102, 120.

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With 14,354 Energy Storage related patents published between 2002 and 2022, LG Corp holds the most number of Energy Storage patents across the world, of which 53.0% was contributed by its subsidiary LG Life Science LTD. The second largest number of Energy Storage related ...

With 14,354 Energy Storage related patents published between 2002 and 2022, LG Corp holds the most number of Energy Storage patents across the world, of which 53.0% was contributed by its subsidiary LG Life Science LTD. The second largest number of Energy Storage related patents were published by Toyota Motor Corp with 6,625 patents.

This application is a continuation of U.S. patent application Ser. No. 12/481,235, filed on Jun. 9, 2009, which claims priority to U.S. Provisional Patent Application Ser. No. 61/059,964, filed on Jun. 9, 2008, the disclosure of each of which is hereby incorporated herein by reference in its entirety. ... "A Hybrid Energy Storage System Based ...

This paper explores global patent trends in energy storage. Growth and Global Distribution of Patent Publications in Energy Storage. Figure 1 shows the number of patent publications each year between 1996 and 2016 in three key energy storage sectors: thermal energy storage, electro-mechanical energy storage and electro-chemical storage.

The top five companies accounted for 35% of patenting activity. Analysis of patenting activity by companies shows that Contemporary Amperex Technology filed the most energy storage patents within the power industry in Q2 2024. The company filed 178 energy storage-related patents in the quarter, compared with 255 in the previous quarter.

As such, better energy storage technologies can open up opportunities to integrate larger quantities of renewable energy into the energy system as a whole, thus helping to replace fossil fuels in a variety of applications. These challenges help to explain the rapid and sustained increase in electricity storage innovation documented in this

The top five companies accounted for 24% of patenting activity. Analysis of patenting activity by companies shows that Contemporary Amperex Technology filed the most energy storage patents within the power industry in Q3 2024. The company filed 108 energy storage-related patents in the quarter, compared with 210 in the previous quarter.

Eos Energy Storage specializes in the development and manufacturing of zinc-powered energy storage solutions within the clean energy sector. Use the CB Insights Platform to explore Eos Energy Storage's full profile. ... Eos Energy Storage has filed 30 patents. The 3 most popular patent topics include: electrochemistry; rechargeable batteries ...

The US Patent office has awarded William Taggart, Cavern Energy Storage's founder, a patent for the development of underground pumped storage hydroelectric using salt domes. This patent builds on previous

patents where the concept of underground pumped storage hydroelectric was initially proposed in the 1970's.

The Interstate Renewable Energy Council has published its 14th annual National Solar Census 2023 gauging employment issues in the solar and storage industry. See which issues are most critical. Hydrogen Supply Chains

Year-to-year change in primary energy consumption by source. Year-to-year change in primary energy consumption from fossil fuels vs. low-carbon energy. Year-to-year percentage change ...

Reporter covering the green technology space, with a particular focus on smart grid, demand response, energy storage, renewable energy and technology to integrate distributed, intermittent green ...

The commercialization process of energy storage patents affects the development of the energy storage industry. Clarifying the relationships between the characteristics of the applicants and patent transfer can facilitate technology transfer. In this study, China's energy storage patent data from 2009 to 2021 were divided by the rolling period.

To our knowledge, only a few exceptions have analyzed the ICT convergence trend of solar PV, wind, and energy storage fields using patent co-classification data [3, 5]. Given the rapid development in basic technologies, as well as the shadowed digitalization processes, these available patent-based LCET digitalization studies suggest the ...

o 1113 patent awards resulting from HFTO -funded R& D (1977-2019) 582 fuel cell patents (52%) 397 hydrogen production and delivery patents (36%) 134 hydrogen storage patents (12%) 28% of all patents are available for license or licensed 43% are actively being used in R& D o Three types of organizations received patents

A compact energy storage system includes a high speed rotating flywheel and an integral motor/generator unit. The rotating components are contained within a vacuum enclosure to minimize windage losses. The flywheel rotor has a unique axial profile to both maximize the energy density of the flywheel and to maximize the volumetric efficiency of the entire system.

Abstract: An energy storage system converts variable renewable electricity (VRE) to continuous heat at over 1000°C. Intermittent electrical energy heats a solid medium. Heat from the solid medium is delivered continuously on demand. Heat delivery via flowing gas establishes a thermocline which maintains high outlet temperature throughout discharge.

In continuation of the article on energy storage technologies dated 05.06.2022 and articles dated 20.06.2022 and 22.12.2022 on CSP tracking systems, below we provide for your consideration a short analysis of patent documents related to solar energy storage systems employing latent heat approach.

In continuation of the article on energy storage technologies dated 05.06.2022 and articles dated 20.06.2022 and 22.12.2022 on CSP tracking systems, below we provide for your consideration a short analysis of patent ...

Figure 10 - Percentage of Geothermal Energy U.S. Patents in Most Common Cooperative Patent Classifications (Among All Geothermal Energy Patents) 20 Figure 11 - Percentage of GTO-funded Geothermal Energy U.S. Patents in Most Common Cooperative

An energy storage system and method that enables gravity-based energy storage to have a significantly larger capacity in a single shaft for given capital cost and thus an improved cost per unit energy for large scale energy storage as well as enabling continuity of power input and output at an external connection point across the extent of the system's ...

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 ...

Electrolysers for hydrogen production. The 1.5°C Pathway report issued by the International Renewable Energy Agency (IRENA) predicts that hydrogen and derivatives will need to account for 12% of final energy use by 2050. Green hydrogen from water electrolysis using renewable energy is expected to be both a key strategic energy source and storage medium.

With 236 Energy Storage related patents published between 2002 and 2022, Gogoro, Inc. holds the most number of Energy Storage patents in the global Transportation, Infrastructure and ...

With 2,409 Energy Storage related patents published between 2002 and 2022, State Grid Corporation of China holds the most number of Energy Storage patents in the global Power & ...

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