

Who owns the most energy storage-ICT patents?

The State Grid Corporation of China owns the most energy storage-ICT patents, with 127 invention applications and 73 utility models. Goertek Technology owns the most utility models with 100 patents. Except for Goertek, all the top eight applicants owned more invention application patents than utility model patents.

What are emerging digital technologies in energy storage?

Under a global wave of digital transformation, a growing body of research has recognized and introduced the significance of emerging digital technologies embedded in energy storage [16, 17], particularly on the blockchain [18, 19], energy big data and cloud computing [20, 21] and the energy Internet of Things (IoT) [18, 22].

How do you calculate energy storage patents?

Our model can be stated as follows,
$$\ln(ES_{patentit}) = \alpha Digitalit + \beta X_{it} + \gamma_t + \delta_j + \theta_k + \epsilon_{it}$$
 where the dependent variable $ES_{patentit}$ is the number of energy storage patents held by firm i at year t .

What is energy storage technology?

Energy storage (ES) technology has been a critical foundation of low-carbon electricity systems for better balancing energy supply and demand [5, 6]. Developing energy storage technology benefits the penetration of various renewables [5, 7, 8] and the efficiency and reliability of the electricity grid [9, 10].

Which provinces have the most energy storage-ICT patent applications?

We define the top five provinces with the most energy storage-ICT patent applications as high-convergence regions, including Guangdong, Jiangsu, Zhejiang, Shanghai and Beijing. Similarly, the high-convergence industries are defined as the top ten industries with the most energy storage-ICT patent applications.

Does digital energy storage technology improve system operation and maintenance?

It is also related to previous evidence on the significance of digital energy storage technology in enhancing system operation and maintenance [1, 55], which implies the global efforts towards the development of digital and intelligent energy-storage systems.

With the continuous development of renewable energy sources, there is a growing demand for various energy storage technologies for power grids. Gravity energy storage is a kind of physical energy storage with competitive environmental and economic performance, which has received more and more attention in recent years.

B2U's EPS technology deploys second-life EV batteries in energy storage applications. ... B2U revolutionizes

energy storage with its cutting-edge technology, converting used EV batteries into seamless plug-and-play systems for large-scale energy storage. ... The EMS enables site automation and remote operability. Automated System for Market ...

Hydrogen, one of earth's most common elements, is a highly adaptable energy source with uses in transportation (cars, trains, and planes), industry (making steel and ammonia), and more [1]. Burning hydrogen produces no harmful consequences like those from burning other fossil fuels [2]. For this reason, it is vital to investigate hydrogen technology further since it ...

The rapid evolution of energy infrastructure and systems creates a rare opportunity to reimagine and create the clean energy future we want, says chief innovation officer at Schneider Electric ...

Since the 2000s, Toyota has chosen to develop both the energy storage technologies that will be used in post-thermal vehicles: hydrogen fuel cells and batteries. ... PhD, Technology and Patent Analyst Power Electronics & Compound Semiconductors at KnowMade. This innovation strategy aims to provide Toyota with one of the most competitive SiC ...

sifications which leads to a determination of the general technology clusters of home automation networking patents. The corresponding findings, which are complemented by the evaluation of the CAGR, and the leading assignees of each cluster can provide guidelines for multiple patent analysis scopes such as trending and competitor analysis as

This book presents the select proceedings of the 4th International Conference on Energy Power and Automation Engineering, ICEPAE 2023. It focuses on the research of clean energy power, low-carbon technology for power generation, and energy automation technology. The book Enriches understanding by including contributions from leading experts.

A unique ocean energy technology developed by researchers at the National Renewable Energy Laboratory has earned its first patent. These hexagonal distributed embedded energy converters (he xDEEC) are ultraflexible, centimeter-sized electric machines that, individually, can only generate one-millionth of a joule of energy but can weave together into ...

Patent data can help inform governments about their comparative advantage at different stages of a technology's value chain and shed light on innovative companies and institutions that may be in a position to contribute to economic recovery and ...

Praxis Automation Technology Zijldijk 24A, 2352 AB Leiderdorp The Netherlands +31 (0)71 5255 353. Spare parts: parts@praxis-automation ... Features. Mega-Guard GreenBattery forms the heart of an electric energy storage (EES) system for marine environment. Sailing and silent running becomes a reality with GreenBatteries. The Mega-Guard ...

Grid-sized battery energy storage systems (BESS) are critical for a green future. However, scaling battery manufacturing from kilowatt hours to gigawatt hours poses a unique and daunting challenge. ... This new class of automation technology developed by ATS Industrial Automation delivers significant critical path savings while reducing worker ...

According to GlobalData's company profile on NRG Energy, Wireless charging wearables was a key innovation area identified from patents. NRG Energy's grant share as of March 2024 was 49%. Grant share is based on the ratio of number of grants to total number of patents. Security and automation system for deterrence techniques

Abstract: Disclosed is an optimal power flow-based hierarchical control method for a distributed energy storage system (ESS), where the method divides control of an energy storage cluster into three layers, performs primary and secondary control to realize intra-cluster control, and performs tertiary control to realize inter-cluster control. In the primary control, ...

To support the much-needed progress, understanding innovation in electrochemical energy storage revealed in patents is an important research, as well as public policy, issue for several reasons: firstly, as the economic potential for further improvements is tremendous, it is likely that novel ideas are first patented before scientifically ...

Finding energy storage solutions in alternative energy sources, such as solar and wind, is a matter of high importance, according to a recent article from partner publication Control. Through the integration of advanced controls, AI-enabled peak prediction software and battery systems, engineers can optimize the usage of green energy, enhance efficiency and ...

Energy storage systems (ESS) are an important component of the energy transition that is currently happening worldwide, including Russia: Over the last 10 years, the sector has grown 48-fold with an average annual increase rate of 47% (Kholkin, et al. 2019). According to various forecasts, by 2024-2025, the global market for energy storage ...

Also, combining automation with a system that stores excess solar energy minimizes emissions may be more accessible for many compared to other types of energy storage options. Decision-makers are increasingly getting on board with solar energy as a renewable option, but some other possibilities are less familiar to them.

Many commercial and industrial operations are reducing costs and improving stability in power production with the use of energy storage systems. SPOC Grid Inverter Technologies allow for the seamless and automatic release of stored energy during periods of high energy demand and the charging of batteries when supply is high.

Abstract: Provided herein are energy storage device electrode films comprising a hybrid electrode film, and methods of forming such multilayer hybrid electrode films and energy storage devices comprising multilayer hybrid electrode films. Each hybrid electrode film may comprise a self-supporting dry coated active layer and a wet cast active ...

To ensure grid reliability, energy storage system (ESS) integration with the grid is essential. Due to continuous variations in electricity consumption, a peak-to-valley fluctuation between day and night, frequency and voltage regulations, variation in demand and supply and high PV penetration may cause grid instability [2] cause of that, peak shaving and load ...

Justia Patents US Patent Application for BUILDING AUTOMATION SYSTEMS WITH AUTOMATIC METADATA TAGGING AND MANAGEMENT Patent Application ... Latest Johnson Controls Technology Company Patents: ... a cooling tower subplant 208, a hot thermal energy storage (TES) subplant 210, and a cold thermal energy storage (TES) subplant 212.

MILWAUKEE, Wis., November 11, 2021-- Rockwell Automation, Inc. (NYSE: ROK), the world's largest company dedicated to industrial automation and digital transformation, today announced it has begun collaborating with Cadenza Innovation, the award-winning provider of safe, low cost, and energy-dense Lithium-ion-based storage solutions, to ...

"Developer of an advanced lithium-ion battery designed to address the market's accelerated demand for higher performance energy storage devices. The company's technology delivers high-energy ...

Direct solar radiation may have the greatest potential for large-scale utilization once viable energy storage technology is developed. ... All of the patents have an intelligent adjustment function and process automation. For instance, WO2017210402A1 developed a self-balancing photovoltaic energy storage system to manage the energy storage and ...

In the dynamic sphere of building energy systems, this study explores advancements in energy integration, storage technologies, management practices, and occupant behavior, assessing sustainable energy practices, including emerging technologies like fuel cells and energy storage systems. It underscores the significance of efficient energy management, ...

These standards are among numerous standards and guidelines from the ISA that support energy production, transmission, and storage efficiency and; Energy production that is efficient, sustainable ...

The digitalization of low-carbon energy technologies (LCET) provides important technical support for the transition to a greener energy system. Digitalization addresses the phenomenon of the growing application of information and communications technologies (ICT) across the economy, which is regarded as the technology convergence between ICT and ...

Abstract: Various embodiments of the present technology generally relate to solutions for integrating machine learning models into industrial automation environments. More specifically, embodiments include systems and methods for implementing machine learning models within industrial control code to improve performance, increase productivity, and add ...

ABB, one of the largest power and automation companies in the world, is in the battery storage space. It offers distributed energy storage modules for grid storage purposes such as peak shaving, load shifting voltage regulation, renewable integration, and backup power. ... but the technology giant is offering energy storage and related ...

Energy storage (ES) technology has been a critical foundation of low-carbon electricity systems for better balancing energy supply and demand [5, 6] veloping energy storage technology benefits the penetration of various renewables [5, 7, 8] and the efficiency and reliability of the electricity grid [9, 10].Among renewable energy storage technologies, the ...

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. ...

China Mining Drives and Automation Co Ltd Priority date (The priority date is an assumption and is not a legal conclusion. ... 2017-02-23 Priority to CN201720164998.8U priority Critical patent/CN206555081U/en 2017-10-13 Application granted granted Critical ... Energy storage technology can be divided into physics energy storage, chemical energy ...

Web: <https://olimpskrzyszow.pl>

Chat online: <https://tawk.to/chat/667676879d7f358570d23f9d/1i0vbu11i?web=https://olimpskrzyszow.pl>