

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.

Are patents a valid indicator of innovation in the energy sector?

Following the work of Griliches 42, others evaluated patenting in the energy sector, and concluded that patents are a valid indicator to measure innovativeness within the energy sector 2,28. This result has been extended and re-confirmed by a number of authors 43.

Are patents a proxy for Innovation?

We consider patents filed according to the Patent Cooperation Treaty (PCT) as a proxy for innovation. Following the work of Griliches 42, others evaluated patenting in the energy sector, and concluded that patents are a valid indicator to measure innovativeness within the energy sector 2,28.

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.

Will electricity storage benefit from R&D and deployment policy?

Electricity storage will benefit from both R&D and deployment policy. This study shows that a dedicated programme of R&D spending in emerging technologies should be developed in parallel to improve safety and reduce overall costs, and in order to maximize the general benefit for the system.

Can the US become a leader in electric battery storage?

Further government support is necessary to promote responsible R&D spending that enables serious cost reductions across solar, wind, and storage, while also decarbonizing electricity and transportation. The US has the opportunity to become a leader, not a laggard, in electric battery storage manufacturing and development.

Based on current price trajectories and a patent activity level of 444 patents per year using our model, battery prices will fall from 2016 to 2020 by 39%, which puts utility-scale battery storage ...

The overall international energy storage technology shows a steady upward trend, and each essential technosphere is at the development stage of the technology life cycle. ... International competition of key energy storage technologies based on high-quality patents[J]. Energy Storage Science and Technology, 2022,

11(1): 321-334. share this ...

According to GlobalData's company profile on Energy Vault, was a key innovation area identified from patents. Energy Vault's grant share as of January 2024 was 25%. Grant share is based on the ratio of number of grants to total number of patents. Energy storage and delivery system using elevator cage

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 ...

In recent years, liquid air energy storage (LAES) has gained prominence as an alternative to existing large-scale electrical energy storage solutions such as compressed air (CAES) and pumped hydro energy storage (PHES), especially in the context of medium-to-long-term storage. LAES offers a high volumetric energy density, surpassing the geographical ...

A compressed fluid energy storage system includes a submersible fluid containment subsystem charged with a compressed working fluid and submerged and ballasted in a body of water, with the fluid containment subsystem having a substantially flat portion closing a domed portion. The system also includes a compressor and an expander disposed to ...

keyword search. The Cooperative Patent Classification System (CPC) is an extension of the IPC ... technology patents Until recently, documents relating to sustainable technologies were scattered throughout the IPC and ECLA/CPC and did not fall under one ... fuel cells and energy storage. 11 Y02P: CCMTs in the production or processing of goods ...

The Joint Center for Energy Storage Research (JCESR), a DOE Energy Innovation Hub, is a major partnership that integrates researchers from many disciplines to overcome critical scientific and technical barriers and create new breakthrough energy storage technology. Led by the U.S. Department of Energy's Argonne National Laboratory, partners ...

Technology innovation is widely recognised as a critical means in tackling climate change and fulfilling energy policy objectives. The objective of this paper is twofold: first, to provide a descriptive analysis of innovation in energy technology across countries and sectors and over time; and second, to explore the determining factors of patented knowledge diffusion ...

Since its initial launch a year ago, EPO patent examiners and data analysts have compiled almost 70 datasets within this platform, encompassing such diverse technologies as offshore wind energy, smart solar systems, the optimisation of energy storage technologies and solutions for carbon-intensive industries such as steel and cement production.

Justia Patents Housings, Windows Or Covers US Patent for Flywheel energy storage system Patent (Patent # 10,778,061) Flywheel energy storage system . Dec 21, 2018 ... Clean energy storage technology in the making: An innovation systems perspective on flywheel energy storage, Journal of Cleaner Production, 2017,162,1118-1134. ...

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 ...

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 ...

a) Patent life cycle until patent being granted b) Selection process for patent papers of electrolyser technologies for H₂ production using Lens database c) Top applicants for electrolyser technologies by the jurisdiction in terms of country and companies d) Top 10 inventors of the selected patents and their country e) Technical area for electrolyser control ...

Abstract: An energy storage device and a power consuming apparatus are provided in the disclosure. In the energy storage device, a top cover defines an opening, a response member covers the opening, a lower plastic member includes a grid structure, the grid structure defines vent holes, and the vent holes are in communication with the opening.

Search ScienceDirect. Energy Storage and Saving. Volume 1, Issue 3, September 2022, Pages 166-216. ... In cryogenic energy storage, the cryogen, which is primarily liquid nitrogen or liquid air, is boiled using heat from the surrounding environment and then used to generate electricity using a cryogenic heat engine. ... selected theoretical and ...

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