

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.

Why is energy storage important in the EU?

It can also facilitate the electrification of different economic sectors, notably buildings and transport. The main energy storage method in the EU is by far 'pumped hydro' storage, but battery storage projects are rising. A variety of new technologies to store energy are also rapidly developing and becoming increasingly market-competitive.

Why should EU countries consider the 'consumer-producer' role of energy storage?

It addresses the most important issues contributing to the broader deployment of energy storage. EU countries should consider the double 'consumer-producer' role of storage by applying the EU electricity regulatory framework and by removing barriers, including avoiding double taxation and facilitating smooth permitting procedures.

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).

What is EPO & IEA?

The EPO is also the world's leading authority in patent information and patent searching. The International Energy Agency (IEA) is at the heart of global dialogue on energy, providing authoritative analysis, data, policy recommendations, and real-world solutions to help countries bring about secure and sustainable energy for all.

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.

HyperStrong is a leading energy storage system integrator and service provider. Founded in 2011, with over 12 years of R&D and experience garnered through more than 300 projects and over 15GWh of deployment, HyperStrong offers a full portfolio of energy storage products as well as one-stop solutions for the full spectrum of utility-scale, commercial & industrial, and ...

This paper explores global patent trends in energy storage. Growth and Global Distribution of Patent

What are the eu energy storage patents

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.

With 274 patents held between 2002 and 2022, Porsche Automobil Holding SE holds the most number of Energy Storage patents in the Power & Utilities sector in the Europe region, of ...

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.

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.

Solid-state hydrogen storage in Hydrogen Storage Materials (HSM 1) has been extensively investigated in recent years [3]. Different attributes must be evaluated during the development and selection of HSM, such as the gravimetric and volumetric hydrogen capacities, its ease of activation (first hydrogenation), reversibility and cyclability, recyclability, toxicity, the ...

Electricity storage inventions show annual growth of 14% over past decade, joint study by European Patent Office (EPO) and International Energy Agency (IEA) finds Amount ...

Discover Tesla's innovative energy storage device with a unique electrode design. Learn about the patent's solvent-free fabrication method and cost-effective approach to electrode fabrication.

inventions in the field of electricity storage. Because patents are filed many months, or even years, before products appear on the market, patent information is an early indicator of ... is an early indicator of which technologies could be poised to play ground-breaking roles in the future. As the patent office for Europe, the EPO is ...

Using firm-level patent data from 1978 to 2015, I examine the impact of market-based environmental policies on innovation in energy storage. My results highlight the role of environmental taxes, feed-in tariffs for solar energy and tradable certificates for CO₂ emission to promote firms' patenting activity, whereas renewable energy certificates and ...

Renewable electricity is expected to account for a large share of energy consumption in the EU by 2050, but not all of it. Hydrogen has the potential to help bridge the gap, including as a vector for renewable energy storage, alongside batteries. ... nearly 90% of electricity storage patents related to battery technologies. This

patenting trend ...

FoM energy storage projects across Europe. EMMES focuses primarily on the deployment of electrochemical storage, providing data, insight and analysis across all segments (residential, commercial & industrial, FoM) for 14 countries across Europe. The

It was seen that patent filings in gravity based energy storage systems has been, on average, increasing year-on-year. 2023 was also full of commercial developments and brought news that Gravitricity and Energy Vault are moving forward with commercialising gravity energy storage systems around the world; Gravitricity are partnering with ABB and ...

Energy and Storage. X; LinkedIn; Facebook; Summary. According to the European Patent Office, the number of worldwide patents for power storage technologies increased by an average of 14% annually from 2005 to 2018, four times faster than the average growth in patents for all other technologies. ... The Value of the EU Battery Passport. 15.04. ...

In the field of energy storage, engineers are working overtime to make sure that power can be stored for prolonged periods of time with minimised "spillover" and wastage. Storage also plays a key role in reaching the European Commission's goal of increasing energy efficiency across EU member states by 20% before the year 2020, while ...

element to energy transitions in the EU and beyond. Combining the energy expertise of the IEA with the EPO's patent knowledge, it provides the most comprehensive and up-to-date global review of patenting trends in a broad range of technologies - from the production of hydrogen to its storage, distribution and transformation,

European Union innovation in energy storage is marked by several key corporations securing patents, including prominent firms such as Siemens, Bosch, and Vattenfall. Various other smaller enterprises and startups also contribute significantly to the landscape.

Energy may also be stored in the form of "clean" molecules, such as hydrogen, for future use in fuel cells. Research into energy storage solutions has resulted in high levels of innovation across multiple technology fields, which in turn has significantly increased global patent activity.

smart grids as well as carbon-capture, utilisation and storage (CCUS), that serve as key enablers of the energy transition. Patenting related to renewable energy technologies (like wind, solar, geothermal or hydroelectric power) and other energy supply technologies has been falling since 2012, in contrast

Japan has the most patent applications (49%), but China has the highest growth rate here. Chanchetti et al. (Chanchetti et al., 2016) took a detailed look at different hydrogen storage materials and concluded that USA, Japan, China and the European Union (EU) are the main patenting territories.

These effects can lead to misleading conclusions when evaluating a country's competitiveness when it comes to patents in renewable energy technology fields. ... RESET" and coordinator of the sub-program 6 "Energy storage" of the European Energy Research Alliance (EERA). ... Europe's energy transition needs deeper integration.

This report is an output of the Clean Energy Technology Observatory (CETO), and provides an evidence-based analysis of the overall battery landscape to support the EU policy making process. It is part of the series of reports on clean energy technologies needed for the delivery of the European Green Deal. It addresses technology development, EU research and ...

uses new approaches to identify patents related to fossil fuel technologies. The results show fossil fuel patents declining as LCE patents grow. It is clear that to reach our shared objective of net zero emissions, further efforts are urgently required to take this resurgence of clean energy innovation to a new and transformational level.

"The rapid and sustained rise in electricity storage innovation shows that inventors and businesses are tackling the challenge of the energy transition. The patent data reveals that while Asia has a strong lead in this strategic industry, the US and Europe can count on a rich innovation ecosystem, including a large number of SMEs and research ...

An appropriate deployment of energy storage technologies is of primary importance for the transition towards an energy system. For that reason, this database has been created as a complement for the Study on energy storage - contribution to the security of the electricity supply in Europe.. The database includes three different approaches:

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 ...

With over 666 patents and pending patent applications filed around the world, Enphase Energy is a global leader in patent filings covering renewable energy technology. We're committed to developing and protecting the most innovative tools that deliver on a vision of energy independence for all.

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 ...

The fifth largest number of patents were held by General Electric Co with 15 Energy Storage patents, of which 53.3% was contributed by GE Aviation Systems LLC. The top five patents holders, i.e., Safran SA, Airbus SE, Naval Group, Rolls-Royce Holdings Plc, and General Electric Co, together held 145 Energy Storage

patents during the period.

Search within the title, abstract, claims, or full patent document: You can restrict your search to a specific field using field names.. Use TI= to search in the title, AB= for the abstract, CL= for the claims, or TAC= for all three. For example, TI=(safety belt). Search by Cooperative Patent Classifications (CPCs): These are commonly used to represent ideas in place of keywords, ...

Green Energy Storage is founded with the goal of reshaping the energy transition with a green and sustainable energy storage system. Following a license agreement with the University of Harvard based on the use of Anthraquinone as an electrolyte, GES starts the development process for giving life to a redox flow battery system.

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.

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