

What are the patents for wind power generation and energy storage

What are the different types of wind energy patents?

These patents cover inventions related to offshore wind energy, including key technology concept groupings such as: fixed and floating foundations, towers, mechanical power transmission, blades and rotors, hybrid systems, energy storage, and grids and submarine cables.

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

How many wind energy patents are there?

However, it is worth noting that patent filings specifically classified as "offshore" are too few to conduct meaningful analysis, so we expanded the search to include all wind energy patents. Between 2002 and 2022, the number of patent filings covering these two technologies increased by a factor of fourteen.

How many offshore wind energy patents are there?

This study identifies approximately 17 000 patent families related to offshore wind energy technologies published between 2002 and 2022, as well as revealing a significant surge from 2015 onwards. European countries, particularly Denmark and Germany, have taken the lead in generating inventions.

Which offshore wind industry has the most patents?

Floating foundations, transportation, and mechanical transmission accounted for the largest number of patents within the offshore wind area. Some key policy insights from the patent data are summarised below: Increased invention in offshore wind with dominance in Europe, Asia and USA emerging as future market.

Can patent data help policy makers promote offshore wind development and deployment?

Policy makers using patent data to inform areas of focus to promote offshore wind development and deployment. This analysis showcases how useful patent data can be in terms of identifying areas at the forefront of invention activity, as well as invention gaps.

Embodiments herein describe using a power unit to provide energy to an anti-icing system of a wind turbine generator. The anti-icing unit provides heat to the rotor blades of the wind turbine ...

Key innovations in energy storage play a pivotal role in the renewable energy sector, addressing challenges related to intermittency and energy transfer. Technologies ...

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An energy storage and recovery system employs air compressed utilizing power from an operating wind turbine. This compressed air is stored within one or more chambers of ...

The invention discloses a wind energy storage generation device, and relates to the technical field of wind power generation. An air compressor (2) is installed on fan blades (1) and connected ...

The wind generator system comprises a drive shaft; one or more retreating blades and one or more advancing blades attached to the drive shaft and extending radially outwardly therefrom; ...

A system for harvesting, storing, and generating energy, that includes floating structure supporting machinery to extract energy from wind, waves, surface generators, or currents.

This study proposes a novel method to forecast the emerging patenting area with Main Path Analysis and Word Cloud Analysis. To test the methods, we used Wind Power ...

the present disclosure relates to thermal energy storage and utilization systems. More particularly, the present disclosure relates to an energy storage system that stores electrical energy in form ...

281 ?· The invention relates to a wind-powered electricity generating system for use for example by towns and villages off the utility grid instead of burning fossil fuels. The system stores wind...

A system and method for reducing the energy used from an electric grid by providing electrical energy from non-grid sources and exchanging thermal energy with the structure. The system ...

The most effective configuration for utilizing the site's solar and wind resources is demonstrated to be a 5 kWp wind turbine, a 2 kWp PV system, and battery storage. A wind ...

The present invention relates to a wind energy generating and storing system comprising methods and apparatuses for providing energy dedicated for immediate use and energy storage, to ...

Efficient energy storage systems will be crucial to address the challenges of intermittent energy generation and to ensure a stable, reliable power supply. The combination ...

TECHNICAL FIELD [0001] The present invention relates generally to power generation, and particularly to a portable generator for generating electrical energy from wind and solar energy.

US-8698338-B2 chemical patent summary. A system for harvesting, storing, and generating energy, that includes floating structure supporting machinery to extract energy from wind, ...

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