



Number of solar power generation patents

How many patents does solar energy have?

Solar energy technology has by far more patents than any another renewable energy worldwide. In 2020, this renewable technology had 33,901 patents. By comparison, wind energy had 9,934 patents that year, while geothermal had the least, at 927 patents. Get notified via email when this statistic is updated. Access All Statistics. Starting from

Are green energy technology patents declining?

Although most green energy technologies have seen a downward trend in the annual number of patents published since 2012, the decline has been most pronounced in nuclear power generation technologies and alternative energy production technologies.

When did energy innovation-related patenting expand?

We find that energy innovation-related patenting has first expanded exponentially up until 2013, both in terms of the total number of patent families and PCT international patent applications in green energy technologies.

What percentage of patent applications are based on geothermal energy?

In 2019, they accounted for 28 percent of publications in the renewables sector. However, international patent applications relating to geothermal energy accounted for just 1.4 percent of those published in the sector. Source: Economics and Statistics Division, WIPO Another way to analyze patent trends is to look at where the patent comes from.

Are green energy patents accelerating or decelerating?

Yet this period of accelerated growth in the number of published green energy patents has been followed by a period of deceleration--even a slow decline.

How many patent applications relating to renewables are there?

Using this measure, the total number of patent applications relating to renewables, based on the filing year of the first listed application, increased from 10,463 in 2002 to a peak of 27,089 in 2011. In 2017 (the most recent year for which data is available) the number was 24,027. What can we deduce from all these figures?

Globally, solar photovoltaics accounted for three quarters of renewable capacity additions, with China commissioning as much new photovoltaic energy capacity in 2023 as did ...

The downward trend in the number of new solar patents has continued in the intervening years as the technology has matured, while there has been a corresponding uptick in patent litigation as solar power becomes more readily available and the commercial stakes grow higher. ... suitable for solar power generation. According to the International ...

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The solar power generation wireless charging system of solar energy utilization ratio can be improved the utility model discloses a kind of. The solar power generation wireless charging system, including power generation plate and wireless charger; The power generation plate includes at least two layers solar panel being from top to bottom distributed, and the solar ...

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Solar energy generation by region; Solar energy generation vs. capacity; Solar power generation; The cost of 66 different technologies over time; The long-term energy transition in Europe; Thermal efficiency factor applied to non-fossil ...

Application number EP11734566.0A Other languages German (de) French (fr) Other versions EP2527949A1 (en ... Solar power generation system that performs maximum power point tracking for each unit group KR101629040B1 ... Information on the status of an ep patent application or granted ep patent:

A large number of ropes 3 are stretched on the surface of water surrounded by the floating frame body 1. A large number of generation units consisting of buoyancy bodies on which solar-ray power generating elements 5 are placed are moored to the ropes 3. The elements 5 are electrically connected mutually by cables 11.

Using the Y02 classification scheme developed by the EPO for labelling climate change mitigation technologies, we compared the number of publications in different ...

This article is the second in our renewable energy patent tracker series. The first, published early March 2021, compared patent trends for renewable energy generation technology from 2016 to 2020 with data from the first two months of this year. Using the Y02 classification scheme developed by the EPO for labelling climate change mitigation technologies, we ...

The invention discloses a wind-solar hybrid power generation system. The wind-solar hybrid power generation system has the advantages that alternating currents are generated by a wind-driven power generator, and fixed voltages can be effectively outputted by a rectifier and a DC/DC power converter; solar energy is converted into direct currents by a photovoltaic array under a ...

1. one kind with the electric pencil sharpener of solar electrical energy generation as power supply source, by solar cell (1), conductor wire (2), controller (3), energy-storage battery (4), switch (5), motor (6), power output shaft (7), knife rest (8), revolve cutter head (9), housing (10), pencil intubate (11) and pen bits cabinets (12) and form jointly; Solar cell (1) is inlayed on the top ...

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A solar gas turbine power generation system based on a photothermal principle includes a gas turbine, a solar collector and a solar reflector, where the gas turbine includes a compressor impeller, a turbine, a recuperator and a combustion chamber, the recuperator includes an outer shell, an intermediate shell and an inner shell, a low-temperature gas inlet ...

Based on the understanding of solar cell technology, IPRdaily confined the relevant keywords and classification numbers, sorted out the data on solar cell patents that were applied for and publicly disclosed globally from May ...

Over the past 17 years, the number of published PCT applications relating to solar power increased by 678 percent. Solar has been the leading technology every year since 2009. It peaked in 2012 when 2,691 international patent applications were published. This investment in innovation reflects the growth of solar power generation around the world.

The RV trailer serves as mobile EV charging station, hotel, and solar power generation station. Type: Application Filed: July 25, 2022 Publication date: January 25, 2024 Inventor: Yonghua Wang Integration of antenna and solar charger for remote asset tracking ... Patent number: 9425648

An embodiment of the present invention comprises a solar power generation system having a heating element (61), comprising: a plurality of photovoltaic modules (50); heating parts (60) which have one or more heating elements (61, 61") and are installed on the rear surface of the photovoltaic modules (50) so as to generate heat; a sensor part (20) which detects the amount ...

A solar thermodynamic power generator includes: a quartz window placed on a metal shell to form an electromagnetic resonant cavity structure for receiving solar energy; a ceramic conduit placed in the metal shell, wherein a working medium is heated in the ceramic conduit by the solar energy; a heat exchanger placed in a vacuum insulation oil tank; a steam generator placed in the ...

In recent years, solar power generation-system interconnection devices for ordinary houses have become cheaper than before and still greater spread of solar power generation apparatus is expected in the future. ... Patent number: 6111188 Type: Grant Filed: Jan 16, 1998 Date of ...

Focusing in on solar, the following graph shows the top countries in which published International patent applications relating to solar power originated between 2010 and ...

An apparatus designed for generating electrical power. This apparatus consists of solar panels having high quality of solar cells, with high efficiency for generating electricity from solar energy; a small cylindrical wind turbine at top for generating electricity from wind energy; a transparent pole to support solar panels and wind turbine; a charging dock placed on the supporting base for ...

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The patent publishing trend shows that the number of patents published have continued to increase over the last 10 years with China the largest contributor of solar power technology. ... Optical signal sensor for high ...

3 Power Generation Device. The power generation device of the present disclosure is a power generation device comprising the above-mentioned perovskite solar cells, and the number of the perovskite solar cells may be one or more. The power generation device also has a control system and a transport system.

Application number KR1020130055111A Other languages Korean (ko) ... {Floating type solar power generation system and a rotating unit} BACKGROUND OF THE INVENTION 1. Field of the Invention [0001] The present invention relates to a floating solar power generation system and a rotating unit, ... Korean Patent Publication No. 10-2010-0130515 ...

2004-03-24 Priority to JP2004087183A priority Critical patent/JP2005277038A/en ... The present invention rationally arranges a large number of photovoltaic power generation bodies on the earth. ... A solar power generation body 1 ? formed by integrating a long photovoltaic bar-shaped or wing-like, or plate-like photovoltaic power generation ...

The invention provides a new energy hybrid power generation technology formed by mutually complementing a solar power generation technology with a diesel power generation technology, and composed of a storage battery (plumbic acid or lithium ferrite) energy storage technology. ... 2014-03-25 Priority to CN201310670460.0A priority Critical ...

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