

# Is there a patent for solar power generation

What are the patents on photovoltaic cells?

The patents on photovoltaic cells are concentrated in the area of semiconductors for the conversion of solar radiation into electric energy, in the area of generators for the direct conversion of light energy into electric energy and in the area of solar panels adapted for roof structures.

How many patents does first solar have?

In the ninth position, with 151 patents, is First Solar, a US company one of the largest manufacturers of photovoltaic solar modules with production units in the United States, Malaysia, Germany and Pakistan.

How many patents does General Electric have?

General Electric (a US multinational service and technology company) with 171 patents is in eighth position. GE Renewable Energy works with power generation and storage in hydroelectric power plants, wind and land-based wind turbines, solar panels, and innovative technologies such as biomass and tidal power.

How has photovoltaic technology developed over the last 30 years?

Photovoltaic technology has developed rapidly over the last thirty years. The main activities of photovoltaic patents began in the late 1950s and the main photovoltaic patent assignees at that time were involved in the space business. Patent data has been widely used in technology assessment and forecasting.

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.

Why are photovoltaic cell patent registrations important?

Photovoltaic cell patent registrations are a valuable data set in the analysis and diffusion of PV technology and R&D activities. The dynamics of PV R&D activity is considered high, documented in a large increase in PV patent documents.

Solar panels and securing brackets define each solar electric generation station. Each station has at least one generally East facing panel, at least one generally South facing panel, and at least one generally West facing panel. A power coupling conducts electricity generated by the solar electric generation station into the transmission lines.

The peak of international applications under the Patent Corporation Treaty (PCT), for applications relating to solar power, was reached in 2012. However, new patent filings are still observed for third generation solar ...

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The space-based solar power generating system is comprised of a flexible thin film photovoltaic sheet supported as a sail in the solar wind. The solar wind provides pointing support, deployment support, and structure stiffness without a heavy backup structure. A high Isp electric propulsion system is used to counteract the force exerted on the sail by the solar wind.

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 ...

Solar painted vehicles. With some tweaks, solar paint could be a great way to add solar-generating capacity to vehicles. A standalone power-generating solar setup. With increased efficiency levels and cheaper production costs, high-quality solar paint could one day start working as a primary source of power generation for homes and businesses.

The power generation device also has a control system and a transport system. By means of the control system and the transport system, the power generation device of the present disclosure adjusts the electric energy generated from the above-mentioned solar cell to be able to match the electric energy of the power consuming equipment. It needs ...

Keywords: solar power; energy generation; patent portfolio; clustering; LDA; word2vec; technology ... As technology matures and the product life cycle enters the growth stage, there is a fast ...

Figures in recent years are subject to a time lag; submitted patents may not yet be reflected in the data. Data only includes energy source technologies, and excludes technologies such as energy storage or transport.

Abstract: An electrical transmission system has solar electrical generation stations mounted directly to existing utility poles along a transmission line. Solar panels and ...

Buying and installing solar panels is currently the largest single category of investment in electricity generation, according to the International Energy Agency (iea), an intergovernmental think ...

India is a fast-developing solar industry with a solar installed capacity of 66.97 GWAC as of the year 2022 and ranks fourth globally in 2021 in solar power generation. India has a solar potential of about 748 GW, assuming 3% of ...

Justia Patents US Patent for Solar thermodynamic power generator Patent (Patent # 11,619,379) ... there is an urgent need for a novel solar thermodynamic device which, like natural gas power generation, will not be affected by climate and weather, so as to form a high-efficiency and energy-saving power generation system

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that combines solar ...

Photovoltaic (PV) technology has witnessed remarkable advancements, revolutionizing solar energy generation. This article provides a comprehensive overview of the recent developments in PV ...

The objective of this study is to present a comprehensive review of wind-solar HRES from the perspectives of power architectures, mathematical modeling, power electronic converter topologies, and ...

solar power; energy generation; patent portfolio; clustering; LDA; word2vec; technology. ... There are many types of thin film solar cells, including germanium films (amorphous).

The power industry continues to be a hotbed of patent innovation. Activity is driven by the global shift towards renewable energy sources, declining solar panel prices, and beneficial government policies, and growing importance of technologies such as concentrated solar power (CSP) and solar photovoltaics (PV).

Downloadable (with restrictions)! The objective of this article is to identify the technological development of photovoltaic cells by the analysis of patents. The Derwent Innovations Index (DII) database of Thomson Derwent was used for this research. 22,682 patents were obtained. The results indicate that 1) the number of patents deposited on photovoltaic cells grows every year, ...

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 Global Trends report referred to above found that there was only 25 ...

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. The new energy hybrid power generation technology provides a new energy solution for ...

Solar photovoltaic (PV) power generation is the process of converting energy from the sun into electricity using solar panels. Solar panels, also called PV panels, are combined into arrays in a PV system. ... For ...

According to the International Energy Agency, there are some circumstances where solar photovoltaic (PV) is now the cheapest electricity source in history. <sup>4</sup> This is because the price of solar has fallen sharply ...

If you're innovating in the solar industry, patents will be a primary tool for legally protecting your IP. This is because solar power systems can typically be reverse engineered by competitors, which means you can't ...

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In addition, a comparison is made between solar thermal power plants and PV power generation plants. Based on published studies, PV-based systems are more suitable for small-scale power ...

With regard to aforementioned contents, power generation can be increased with the combination of a geothermal abandoned oil well with solar energy and this method can boost the project in terms of economic. Now to maximise extraction of power from geothermal and solar resources for power generation, two hybrid systems are proposed and compared.

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