

Core patents for solar photovoltaic 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.

What are the technological developments of PV cells?

Sampaio et al. [38] described the technological development of PV cells using patents analysis. The results show that the PV patents are concentrated in three areas: PV semiconductor materials, direct conversion of light energy into electric energy, and solar panels adapted for roof structures.

What are the patents for solar cells?

The patents that stand out in this TR are: US20040200520A1 (Metal contact structure for solar cell and method of manufacture), US20050016585A1 (Manufacturing a solar cell with backside contacts), US20060130891A1 (Back-contact photovoltaic cells) and US20070186970A1 (Solar cell and method of fabricating the same).

Are there common patterns of knowledge between solar photovoltaic and earlier industries?

Commonalities in patterns of knowledge between solar photovoltaic and earlier industries are demonstrated. This study first identifies a comprehensive patent dataset for solar PV technologies then differentiates three generations using a three-stage patent extracting methodology.

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 is the technological knowledge basis of photovoltaic-thermal system?

The technological knowledge basis of this route is constituted by patents on solar cells with an integrated diode and bypass method, passing through photovoltaic panels with individually articulated concentrating elements and patents on receivers for concentration of photovoltaic-thermal systems. 5.2.4.

According to the ranking list, LG Group, Jinko Solar and AIKO Technology rank the first, second and third place respectively, with 1,360 patents, 1,101 patents, and 931 patents accordingly, followed by CSIQ, Panasonic ...

For the generation of electricity in far flung area at reasonable price, sizing of the power supply system plays an important role. Photovoltaic systems and some other renewable ...

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Photovoltaic power generation is an efficient use of solar energy. In this article, the different types of solar transformer, including step-up transformers, step-down transformers, distribution ...

To examine the changing value of solar power, Brown and his colleague Francis M. O'Sullivan, the senior vice president of strategy at #216;sted Onshore North America and a senior lecturer at the MIT Sloan School of ...

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 energy sources to convert them ...

1 Introduction. Among the most advanced forms of power generation technology, photovoltaic (PV) power generation is becoming the most effective and realistic way to solve ...

Patents. The role of renewable energy in global power generation is growing -- particularly for solar power. Thanks to increasing innovation and decreasing costs, global solar capacity has doubled from 2018 ...

Standard photovoltaic solar cells (PV cells) use only about half of the light spectrum provided by the sun. The infrared part is not utilized to produce electricity. Instead, ...

Patent CN105743429A describes off-grid photovoltaic power generation systems based on Internet of Things (key terms: inverter, array, load, DC converter, wireless receiver, transmitter, emitter, grid internet, connect).

The total number of published PCT applications for renewable energy can be divided into the four main sectors: solar power, fuel cells (which generate electricity through chemical reactions), wind energy and geothermal (using ...

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 ...

Research and development of silicon heterojunction solar cells have seen a marked increase since the recent expiry of core patents ... off-grid, switch, light, radiation, convert). Patent CN204179991U describes solar ...



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Contact us for free full report

Web: <https://inmab.eu/contact-us/>

Email: energystorage2000@gmail.com

WhatsApp: 8613816583346



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