

How many solar energy patents are there?

Using this retrieval strategy, we assembled 242,631 solar energy patents, 74,800 wind energy patents, 37,675 biomass energy patents, 17,228 geothermal energy patents, 16,306 tidal energy patents, and 6023 nuclear energy patents. After preprocessing the data and deleting duplicates, etc., we ultimately retrieved 383,756 patents. 4.

What patents do solar companies have?

They include Schott Solar, SunPower and PowerLight patents for PV mountings and shingles, a Stanford patent describing a bi-level contact PV cell, a DOE patent for multi-junction PV cells, and Abacus Controls and MRIGlobal (National Renewable Energy Laboratory) patents for PV power management and storage.

How many SunPower patents are there?

The list is headed by three SunPower patents, including patents describing back contact solar cells (US #7,468,485) and solar cell installations (US #8,158,877). Each of these patents has been cited by more than ten times as many subsequent patents as expected.

What are some examples of solar patents?

These include patent families owned by eight of the ten leading organizations (i.e. all except Merck and Fuji Film). Examples include patents for solar cell encapsulation assigned to DuPont, solar cell interconnects assigned to Applied Materials, and thin-film PV cells assigned to Total SA (SunPower).

Who owns a solar cell patent?

This SETO-funded family (whose representative patent<sup>13</sup> is US #5,053,083) is assigned to Stanford University. It describes bi-level contact solar cells, and is linked to 238 PV patent families assigned to leading organizations. These include patent families owned by eight of the ten leading organizations (i.e. all except Merck and Fuji Film).

How many solar patent families are there?

This patent family is linked to 85 subsequent patent families assigned to the leading PV organizations. These include Canon patents describing solar modules, IBM patents for solar concentrators, and Total SA patents related to solar panel installation.

According to Nature Communications, solar power is currently on track to become the world's dominant source of power by 2050. If you're innovating in the solar industry, patents will be a primary tool for legally ...

Continuing the TOPCon patent battle, JinkoSolar has now filed a patent infringement claim in the U.S. District Court for the Northern District of California against VSUN and Toyo. The claims are against two TOPCon ...

Abstract: Determining solar panel placement enables sales representatives and homeowners to modify a solar

power system by adding or removing solar panels or arrays of ...

Space-based solar power (SSP) systems have included microwave-based systems and optical systems. Microwave-based systems typically require large-filled apertures in space, along with ...

The clusters and evolution pathways for solar energy patents using the concept lattice algorithm are shown in Figure 12. A total of 52 patents from three categories (grid-connected energy storage systems, solar hydropower ...

Innovations in solar energy technologies represented a majority of the patents NREL acquired in FY 2024, mirroring the growing role solar plays in the global electricity ...

A solar powered vehicle utilizing incident solar radiation to charge storage batteries for energizing an electric motor mounted within the vehicle. The solar panel comprises a lower panel mounted on an exterior surface of the vehicle and first and second upper panels pivotally connected on opposed sides to the lower panel and movable between a first inboard position overlaying the ...

A low earth orbit system for beaming energy to earth includes a solar reflector that collects and focuses solar light onto a solar panel, transforming it into electricity to drive a diode pumped laser, which then produces a high-power laser beam that is directed to a receiver on the surface of the Earth via a diffractive lens. A steering system of optics and automated hardware controls the ...

Thin-film solar-cell technologies lower the cost and weight by utilizing less material, and offer additional benefits of mechanical flexibility coupled with the potential for low-cost...

Method and apparatus for solar power conversion US6979911B2 (en) \* 2003-05-08: 2005-12-27: United Technologies Corporation: Method and apparatus for solar power conversion US20060066107A1 (en) \* 2003-05-08: 2006-03-30: Otting William D: Method and apparatus for solar power conversion US20040222636A1 (en) \*

Using this retrieval strategy, we assembled 242,631 solar energy patents, 74,800 wind energy patents, 37,675 biomass energy patents, 17,228 geothermal energy patents, ...

Abstract: Determining solar panel placement enables sales representatives and homeowners to modify a solar power system by adding or removing solar panels or arrays of solar panels, or changing module type. The user sees the corresponding solar energy production update instantly in a user interface.

Unlike gasoline and coal-based systems, Mouchot's system could not store energy for later use. Concluding that solar energy was not economically viable, the French government withdrew support for Mouchot's research. ...

Patents by type of energy: Solar leads the way. Solar patents have dominated the total share of renewable energy patents since 2012. Solar technology accounted for 42% of total patents granted. Fuel cell and wind ...

A solar energy portable power bank supplies power to external devices, and includes: a bank body, a solar panel, a storage battery, a power converter, a fan, an input port and an output port. The solar panel placed on the surface of the bank body provides electrical energy to the storage battery in case of no external power supply to charge the storage battery.

A trailer mounted, self contained solar power system having a plurality of solar panel sections that are arranged to fold about the sides and top of the trailer. The panel sections unfold and lock together through slide rams that are contained within a rack structure supporting the panel sections to form a planar array that is easily deployable at a desired angle to the horizontal.

solar power power bank view bank solar Prior art date 2020-09-22 Legal status (The legal status is an assumption and is not a legal conclusion. Google has not performed a legal analysis and makes no representation as to the accuracy of the status listed.) ... 2020-09-22 Priority to US29/751,476 priority Critical patent/USD918828S1/en 2021-05-11 ...

The solar energy is available to supplement that of the other energy sources, such as a plug in source or fossil fuel of this example. The supplemental solar energy effectively increases the performance of the vehicle 10, i.e. increased electric range ...

An Analysis of the Influence of SETO-funded Concentrating Solar Power Patents Report prepared by 1790 Analytics LLC Page i Executive Summary This report describes the results of an analysis tracing the technological influence of Concentrating Solar Power (CSP) research funded by the U.S. Department of Energy (DOE)"s

The numbers are much higher than any other renewable energy patent, showing that solar has been the leading technology every year since 2009 [WIPO, 2019]. Figure 1. Trend with respect to PCT ...

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