

Patent for solar water heating and power generation technology

What are the patent trends for solar energy?

Patent trends for each type of energy are quite different. Solar and wind are currently the most widely used energy sources, and patent numbers for solar energy are far higher than the other energy technologies. Additionally, solar technologies seem to have developed rapidly since 2000, and most particularly since 2005.

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.

Did concentrating solar thermal power generation technology change patent publishing numbers?

The concentrating solar thermal power generation technology (CSP) developed in Australia was transferred to China which may have influenced the patent publishing numbers as they dropped in China during 2017. The top seven assignees are all from China including four academic institutions (universities) and three energy-oriented technology companies.

Which solar power technology is transforming solar power into thermal energy?

These statistics show that the solar power technology is trending toward transforming solar power into thermal energy by hydroelectric systems. Both H02S and H02J IPCs account for the most patent technologies. A01G appears in the top IPCs but not in the top rank of total IPCs which relate to horticulture, flower cultivation and watering systems.

Which country owns the most solar patents?

China owns the most patents in this domain, which accounts for over 90% of overall patents. The US owns the second most patents, but only accounts for 4.3%. China is the world's largest market for solar photovoltaics and solar thermal energy and is the second largest country in energy consumption.

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.

compare the technology trajectories of leading solar water heater (SWH) and solar photovoltaic (PV) firms in China. This paper builds on previous research by Urban et al. [7] and uses...

Solar water heating systems ... In addition to solar water heating systems, solar thermal technology can be integrated into buildings for other applications. For example, solar air heating systems use solar thermal

energy ...

(a) (b) Figure 1. (a) Patent counts of solar water heater technologies in a sample of leading firms (the Chinese Academy of Sciences is a research institute; the others are firms); (b) patent ...

Radical innovative topics are related to the subdomains of solar photovoltaic (solar PV), heat storage, heat exchangers, and solar collectors. 4) Five potential radical ...

7. Thermal energy storage (TES) TES are high-pressure liquid storage tanks used along with a solar thermal system to allow plants to bank several hours of potential electricity. o Two-tank direct system: solar thermal ...

Elminshawy et al. [] developed a new humidification dehumidification (HDH) desalination system integrated with a hybrid solar-geothermal energy source as shown in Fig. ...

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