

What is the future of solar energy?

Power generation by fossil-fuel resources has peaked, whilst solar energy is predicted to be at the vanguard of energy generation in the near future. Moreover, it is predicted that by 2050, the generation of solar energy will have increased to 48% due to economic and industrial growth [13,14].

Is solar energy a future energy resource?

The utilization of renewable energy as a future energy resource is drawing significant attention worldwide. The contribution of solar energy (including concentrating solar power (CSP) and solar photovoltaic (PV) power) to global electricity production, as one form of renewable energy sources, is generally still low, at 3.6%.

How can solar energy be used worldwide?

Installation capacity of solar energy worldwide . Energy can be obtained directly from the Sun--so-called solar energy. Globally, there has been growth in solar energy applications, as it can be used to generate electricity, desalinate water and generate heat, etc.

What is the contribution of solar energy to global electricity production?

While the contribution of solar energy to global electricity production remains generally low at 3.6%, it has firmly established itself among other renewable energy technologies, comprising nearly 31% of the total installed renewable energy capacity in 2022 (IRENA, 2023).

Are there studies on solar PV power efficiency at the national level?

(1) There are few studies on solar PV power efficiency at the national level. Although solar PV generation is widespread and can provide electricity to meet the energy needs of economic development, few analyses have been conducted to assess solar PV power efficiency.

Which countries have a potential for solar energy technology?

In countries located in the 'Sunbelt', there is huge potential for solar energy, where there is a year-round abundance of solar global horizontal irradiation. Consequently, these countries, including the Middle East, Australia, North Africa, China, the USA and Southern Africa, to name a few, have a lot of potential for solar energy technology.

Background The transition towards renewable energy sources has become an imperative step to mitigate climate change, reduce carbon emissions and improve energy security and economic prosperity in a ...

In 2017, China accounted for one-third of global solar power generation [6]. In 2016, ... In addition, the scope and system boundaries of the study cover nearly all of the ...

In the last two decades, renewable energy has been paid immeasurable attention to toward the attainment of electricity requirements for domestic, industrial, and agriculture sectors. Solar ...

In 2023, an estimated 96% of newly installed, utility-scale solar PV and onshore wind capacity had lower generation costs than new coal and natural gas plants. In addition, three-quarters of new wind and solar PV plants offered cheaper ...

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