

How has solar energy generating capacity changed over the years?

Provided by the Springer Nature SharedIt content-sharing initiative Photovoltaic (PV) solar energy generating capacity has grown by 41 per cent per yearsince 2009¹. Energy system projections that mitigate climate change and aid universal energy access show a nearly ten-fold increase in PV solar energy generating capacity by 2040^{2,3}.

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].

What are the disadvantages of solar energy?

Solar energy aligns with many policy objectives (clean air, poverty alleviation, energy security ⁵⁴). It also has disadvantages for some of the players involved, as it leads to rapid economic and industrial change. Solar and wind power have a low energy density compared to alternatives.

How does solar energy impact the environment?

Solar energy investments can meet energy targets and environmental protection by reducing carbon emissions while having no detrimental influence on the country's development [32,34]. 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.

Are solar energy uptake rates underestimated?

Historical projections of energy generation have consistently underestimated uptake rates of solar energy^{16,17}. For example, only a year after the publication of the 2020 World Energy Outlook (WEO), the IEA's "Stated policies scenario" has been revised strongly in favour of solar energy.

What is solar PV & how will it impact the world?

As the fastest deployable energy generation technology with the highest year-on-year growth rate ⁴, solar PV technology is projected to supply 25-49% of the global electricity needs by 2050 while providing employment for up to 15 million people between 2018 and 2050 ⁵.

Likewise the wind energy, the solar resource is weather dependent, presenting therefore a serious challenge. It is thus crucial for the continuity of power supply to assess all ...

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