

Which solar power technologies can be used for sustainable electric power generation?

In this article, different solar power technologies have been reviewed which can be utilized for the global sustainable electric power generation. Major emphasis has been on solar photovoltaic (PV) and concentrated solar power (CSP) technologies. Their types, mechanism, efficiency and cost factors have been discussed.

What is the progress made in solar power generation by PV technology?

Highlights This paper reviews the progress made in solar power generation by PV technology. Performance of solar PV array is strongly dependent on operating conditions. Manufacturing cost of solar power is still high as compared to conventional power. **Abstract**

How has solar technology changed the world?

PV technologies have undergone rapid advancements, enhancing solar cell efficiency, reducing manufacturing costs, and increasing their applicability in various environments [5, 6]. These developments have opened up new avenues for large-scale solar power generation and enabled the integration of solar energy into our everyday lives .

What are the benefits of solar power technology innovation?

The development of an affordable, endless and clean solar power technological innovation has huge long-term benefits as it enhances countries' power security through being an import-independent source, thereby resulting in an improved durability, minimal environmental hazards and reduced cost .

When was solar energy invented?

In 1893, the photovoltaic (PV) effect was discovered; after many decades, scientists developed this technology for electricity generation . Based on that, after many years of research and development from scientists worldwide, solar energy technology is classified into two key applications: solar thermal and solar PV.

How can government support the adoption of solar energy technologies?

Government incentives and support: Governments can provide financial incentives, such as subsidies, tax credits, and grants, to promote the adoption of solar energy technologies and energy storage solutions . These incentives help offset the upfront costs and improve the economic viability of these technologies.

The Future of Solar Energy considers only the two widely recognized classes of technologies for converting solar energy into electricity -- photovoltaics (PV) and concentrated solar power (CSP), sometimes called solar thermal) -- in their ...

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