

Doing environmental assessment of solar photovoltaic power stations

What is the IEA photovoltaic power systems programme?

The IEA Photovoltaic Power Systems Programme (IEA PVPS) is one of the TCP's within the IEA and was established in 1993. The mission of the programme is to "enhance the international collaborative efforts which facilitate the role of photovoltaic solar energy as a cornerstone in the transition to sustainable energy systems."

Do solar PV systems impact the environment?

The previous literature review reveals a well-established environmental impacts assessment of the solar PV systems is crucial. Currently, there is a gap in the literature regarding the impact of different PV system components on the environment.

What are the standards & guidelines for PV electricity?

Additional standards and guidelines have later been published such as the ISO 21930 (Environmental Product Declaration on Construction Products", International Organization for Standardization (ISO) 2017), and the Product Environmental Footprint Category Rules (PEFCR) for PV electricity (TS PEF Pilot PV 2018).

Can PV systems reduce environmental impacts?

The results revealed that the negative environmental impacts of PV systems could be substantially mitigated using optimized design, development of novel materials, minimize the use of hazardous materials, recycling whenever possible, and careful site selection.

What are the environmental factors affecting PV installations?

The production of hazardous contaminants, water resources pollution, and emissions of air pollutants during the manufacturing process as well as the impact of PV installations on land use are important environmental factors to consider.

Why are photovoltaic power stations important?

Photovoltaics, being a crucial clean energy source, have experienced rapid development. The establishment and operation of large-scale photovoltaic power stations have significantly contributed to advancing regional socio-economic progress.

The interest in alternative energy sources, including the use of solar radiation energy, is growing year by year. Currently, the most frequently installed photovoltaic modules are made of single-crystalline silicon solar cells (sc-Si). ...

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The growth of fossil global energy consumption is accompanied by greenhouse gas emissions, which contribute to global warming. To cope with global climate change, the development of ...

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The performance ratio, a globally recognized metric that correlates with reported global solar radiation values, serves as a crucial indicator for evaluating the efficiency of grid ...

Thus, a systematic review on 15 large-scale PV solar energy projects was carried out to assess the industry impacts, through environmental impact assessment (EIA), within the ...

Facing the worldwide power energy crisis, the application utilization of sustainable and renewable energy provides a possible solution. Recently significant progresses have been made ...

The higher the latitude of the solar PV station, the more intense the shading effect will be. Therefore, different locations will have different conversion ratios. In 2022, the Ministry ...

As one of the most important renewable resources, solar energy possesses the qualities of clean environmental protection-friendly and inexhaustibility (Mekhilef et al., 2011; Hernandez et al., 2015). Currently, ...

Web: <https://solar-system.co.za>

