



Solar power generation hydrogen production project environmental assessment

Can a photovoltaic power station produce green hydrogen?

However, the majority of hydrogen production today relies on fossil fuels (96%), with only a small fraction (4%) being produced through water electrolysis. Even though there have been many studies on climate change mitigation with a focus on Africa, a green hydrogen production from a photovoltaic power station approach has not been reported.

Do we need a sustainability assessment of a hydrogen production?

The literature review (subsection 1.2) found that a complete set of criteria to support a sustainability assessment of a hydrogen production is missing. Measurable sustainability criteria can enable decision makers and project planners to establish environmentally friendly and socially just green hydrogen production.

What are sustainability criteria for green hydrogen production?

Sustainability criteria for green hydrogen production are linked to smart energy systems through their alignment with renewable energy integration, energy efficiency, grid integration, techno-economic modelling, and policy frameworks.

Why is hydrogen not included in energy system analysis & assessment models?

Its historically high production cost and sluggish industrial response to climate science have led to hydrogen being largely absent from energy system analysis and integrated assessment models (IAM) until now [4].

Can solar energy be used to produce hydrogen?

Using solar energy to produce hydrogen can greatly reduce the greenhouse gas emissions and produce 'Green Hydrogen'. Previous studies reported that LCA (Life Cycle Assessment) can be a good evaluation method to analyze different hydrogen production processes.

How can a hydrogen energy system improve environmental sustainability?

Environmental sustainability: Hydrogen energy systems provide an opportunity for enhanced environmental sustainability. LCA methodologies help evaluate the environmental footprint of hydrogen throughout its entire life cycle, guiding sustainable decision-making.



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