

Can solar-driven atmospheric water extraction improve freshwater production?

Solar-driven atmospheric water extraction (SAWE) systems have the potential to address the ongoing freshwater scarcity, but they can only produce water intermittently. Here the authors developed a SAWE system with optimised architecture to achieve continuous freshwater production under sunlight.

What is solar-driven atmospheric water extraction?

Provided by the Springer Nature SharedIt content-sharing initiative Solar-driven atmospheric water extraction (SAWE) is a sustainable technology for decentralized freshwater supply. However, most SAWE systems produce water intermittently due to the cyclic nature, with adoption hindered by complex design requirements or periodic manual operations.

Can solar-powered brackish water desalination reduce water waste?

This cost-competitive, low-emission, solar-powered brackish water desalination technology can also reduce water wastethrough increased recovery ratios and enable the independence of water supply from grid infrastructure for rural areas in India and other resource-constrained countries.

Can intermittent solar energy reduce the cost of brackish water desalination?

The motivation of this study was to substantially reduce the water cost of PV-EDR brackish water desalination systems at a community scale by increasing the direct use of intermittent solar energy, thus reducing the dependence on batteries, with the purpose of greatly improving water access in remote areas.

The study estimates the potential of floating solar panels on reservoirs globally to generate renewable energy, reduce water losses and conserve land.

Geothermal energy is a promising alternative for replacing fossil fuels to ensure the continuity and well-being of human life. Geothermal energy sources have two main categories: high ...

Solar energy provides an emerging alternative to hydropower expansion in river basins with broad ecological and environmental benefits (Schmitt et al., 2019; Siala et al., 2021). Replacing ...

In a similar vein, the Gila River Indian Community in central Arizona received funding this year from the Bureau of Reclamation for water conservation infrastructure, including PV-covered ...

Article Open access Published: 24 July 2024 A solar-driven atmospheric water extractor for off-grid freshwater generation and irrigation Kaijie Yang, Tingting Pan, Nadia Farhat, Alejandra ...

Solar power desalination is a promising technology for clean water production in off-grid locations. Now a time-variant version of this technology overcomes the solar power intermittency that ...

FPV Technical Potential: Generation (TWh/yr) Helpful data: bathymetry (water depth), protected areas, ports, wave heights, transmission lines, major roads, water resource availability, ...

Agricultural irrigation and electrical power generation are the two primary processes requiring freshwater, accounting for 70% and 15% of global freshwater withdrawals 6, 7, respectively. ...

This passive SAWE system, harnessing solar energy to continuously extract moisture from air for drinking and irrigation, offers a promising solution to address the intertwined challenges ...

Some companies that are in charge of water service, and are operating open water reservoirs, have developed a solution to cover the water with floating balls to limit the solar insolation ...

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