

What is solar photovoltaic (PV) based plant protection equipment?

Solar photovoltaic (PV) devices present a positive approach to sustainable crop production by reducing crop loss in various ways. This might result in the extensive use of PV devices in the near future. PV-based plant protection equipment/devices are primarily utilized in protecting crops from birds, weeds, or insects.

How can we achieve environmental sustainability with solar panels?

By deploying solar panels, we hope to achieve environmental sustainability while also constructing a machine learning model that uses Regression Kriging to determine the radiative energy flux on Earth surface, which we hope will help us achieve this aim.

Can AI improve environmental sustainability using solar panels?

In addition, an assessment of AI potential contribution to the achievement of the Sustainable Development Goals is being carried out. In this paper, we develop a machine learning model using Regression Kriging to classify the radiative energy flux at the earth surface in order of attaining environmental sustainability using solar panels.

Why is solar PV technology important?

The costs of manufacturing materials for PV devices have recently decreased, which is predicted to compensate for the requirements and increase the globe's electricity demand. Solar energy is a renewable, clean and environmentally friendly source of energy. Therefore, solar PV application techniques should be widely utilized.

Can a solar-powered microner sprayer be used in agriculture?

A Novel Application of Stand-Alone Photovoltaic System in Agriculture: Solar-Powered Microner Sprayer. Int. J. Ambient Energy 2017, 38, 69-76. [Google Scholar] [CrossRef]

Does solar plant protection equipment cause air pollution?

Solar-based equipment does not create any air pollution compared to the other types of equipment operated using fossil fuels. However, most solar-powered plant protection equipment, except solar insect traps and solar fencing, is in the research and development stage. Table 5. Comparison of conventional and solar plant protection equipment. 7.

The Pennsylvania Department of Environmental Protection (DEP) and county conservation districts are involved in reviewing a site design to manage stormwater, depending on-site construction and layout. DEP requires ...

Photovoltaic panel de glassing machine is a device specifically designed for efficient and non-destructive

separation of solar cells from glass backboards in photovoltaic modules.

With an uprising trend in cutting agriculture's reliance on fossil fuels because of their limited supply and associated adverse impacts on the environment, the use of infrastructures adapted with alternative energy sources would be of crucial necessity. Among all renewable sources, solar energy has the highest compatibility with agricultural activities.

As a result of their environmental impact and energy loss, solar panels are considered hazardous waste (Korniejenko et al., 2021). Solar energy has the potential to provide significant environmental and social benefits, and ongoing research is driving solar power's viability towards a more efficient and sustainable approach.

Solar energy is the most plentiful source of renewable energy that can be easily adopted in several farm applications. Also, photovoltaic (PV) technology, known as the most developed solar energy conversion method, has been prioritized in different energy scenarios for flexible power generation purposes (Gorjian et al., 2021a; 2019; Xue, 2017) small-scale ...

Conventional power generation methods have led to adverse environmental impacts. Thus, the need for a strategic transition to alternative energy sources arises. This study presents a comprehensive approach to sustainable solar energy deployment using multi-criteria decision-making (MCDM) techniques. The research aims to identify suitable sites for utility ...

Solar energy generated from photovoltaic panel is an important energy source that brings many benefits to people and the environment. This is a growing trend globally and plays an increasingly important role in the future of the energy industry. However, its intermittent nature and potential for distributed system use require accurate forecasting to balance supply ...

In addition, various applications of such photocatalysts in solar-based systems are discussed, emphasizing environmental applications. Finally, challenges in developing and using photocatalysts for solar energy conversion and research prospects in areas of photocatalytic solar energy conversion for environmental applications are presented.

The gasification process is powered by a concentrated solar energy system that achieves a solar-thermal energy conversion efficiency of 91.9% [29]. Molten salt is used as the thermal fluid in this system and a NaNO₃-KNO₃ mixture serves as the energy storage medium. Each solar panel spans an area of 85.7 m² [50]. Concentrated sunlight ...

Energies 2022, 15, 7379 2 of 21 gas emissions. These factors have led to environmental pollution, global warming, and climate change. Increasing temperature in the atmosphere due to global warming ...

Switching to solar energy from fossil fuel energy is one of the most fundamental green practices today. ... such as solar energy to comply with environmental protection standards (Radu 2017). The major cloud providers, such as Apple ... (2020) Machine learning based energy management at Internet of Things network nodes. J Trends in Computer Sci ...

This paper highlights the fact that solar power plants can have both positive and negative impacts on space and the environment. Those impacts need to be defined in order to choose optimal spatial and territorial solutions ...

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The use of solar energy has been rapidly expanding as a clean and renewable energy source, with the installation of photovoltaic panels on homes, businesses, and large-scale solar farms.

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This article is part of the Photo-Energy Utilization for a Sustainable Environment: ... source has been one of the most wanted holy grails in the research communities looking for solutions for sustainable energy and ...

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