

What are the solar power utilization scenarios of PV & WWTP projects?

Summary of various solar power utilization scenarios of PV + WWTP projects. Leveraging electricity for hydrogen production via photovoltaic-electrochemical water splitting is another potential utilization scenario [59, 60]. The effluent of WWTPs provides a vast volume of water and oxygen can be simultaneously produced.

How many PV & WWTP projects are there?

Since 2019, hundreds of PV + WWTP projects have been built and are currently in operation nationwide, with the majority located in the Yangtze River Economic Belt. According to 31 case projects, the adoption of PV systems can, on average, supply about 20 % of the electricity required annually.

What are the practical applications of PV systems in the water sector?

In addition to GHG emission reduction potential, economic performance is another important factor to consider in practical applications of PV systems in the water sector. As such, ROI, PBP, and MAC of these cases are calculated and analyzed.

How much electricity can a wastewater treatment plant generate?

A coefficient of 0.184 is obtained and it means that the space for handling 1 m³ /d of wastewater can lead to 18.4 kWh/a of electricity generation under the current deployment paradigm in China. Generally, 0.33 kWh/d is required to treat 1 m³ volume of wastewater at WWTPs in China, thereby leading to about 120 kWh annually.

Abstract As the decarbonization of wastewater treatment plants (WWTPs) progresses, leveraging photovoltaic (PV) systems to reduce greenhouse gas (GHG) emissions has received ...

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