



23 MAR, 2023

Eye on floating solar panels

The Star, Malaysia



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Scientists explore its potentials for energy supply, water saving

BEIJING: A new type of photovoltaic power station is emerging. Built in reservoirs, lakes and ponds, solar panels floating on the water surface have advantages over traditional ground-mounted solar systems in terms of land conservation, efficiency and water loss reduction.

A group of researchers, led by Chinese scientist Zeng Zhenzhong, estimated the potential contribution to energy supply and water conservation by such floating photovoltaic (FPV) systems in the world, according to a *Science and Technology Daily* report.

Growing global energy use and the adoption of sustainability goals to limit carbon emissions from fossil fuels are increasing the demand for clean energy. FPV has become a promising clean energy provider by saving a lot of land resources and raising the efficiency of power generation through the cooling



effect of water evaporation. Zeng Zhenzhong, an environmental scientist with Southern University of Science and Technology in China, led researchers from China, the United States, Thailand and other countries in evaluating how much FPV systems can contribute to energy supply and water conservation.

Based on three global reservoir databases and a realistic cli-

mate-driven photovoltaic system simulation, the team estimated that the potential electricity generation by FPV systems, with a 30% coverage on 114,555 global reservoirs, is about 9,434 terawatt-hours (TWh) per year.

According to latest data from the International Hydropower Association, some 4,252 TWh of electricity had been generated by hydropower in 2021.

The regions with the highest FPV power generation potential are mainly in parts of the United States, eastern Brazil, Portugal, Spain, northern South Africa, Zimbabwe, India and eastern China, according to the study published in the journal *Nature Sustainability*.

Besides the power generation, the reduced evaporation caused by FPV could conserve over 100 billion cubic meters of water every year, equivalent to the annual water con-

sumption of 300 million people.

China has more than 15,000 reservoirs with the potential to use FPV systems, ranking second in number in the world. The country's FPV power generation potential reaches 1 TWh per year, according to the study.

In western China where solar radiation flux is high, some cities should be able to fully meet their needs with FPV electricity from reservoirs, while in central and southern China, FPV electricity output levels will be far from enough, said Jin Yubin, the first author of the study paper. Jin is also from Southern University of Science and Technology.

In China, many FPV projects have been built in recent years. The project in Huainan, east China's Anhui Province, was built in a coal mining subsidence area. — Xinhua