

Hybrid renewable energy system being explored here

Keppel unit, NUS, NTU to study tapping combination of solar, wind and tidal energy

Cheryl Tan

A new type of energy generation system, which harnesses a combination of solar, wind and tidal energy, could soon be developed here.

Keppel Infrastructure, the National University of Singapore (NUS) and Nanyang Technological University (NTU) will be conducting a joint study of the feasibility of developing this hybrid renewable energy system in Singapore, they said on Thursday.

If it is found feasible, the parties plan to design and deploy a pilot system with at least 100MW of renewable energy capacity – enough to power 3,000 four-room Housing Board flats a day – which can be scaled up over time.

After successfully implementing the novel system in Singapore, the aim would be to roll out the innovation to other regions in Asia and beyond.

The system would comprise modular floating solar platforms with the flexibility to integrate other renew-

able energy technologies, such as ocean wave energy conversion systems, tidal energy turbines and paddles, as well as wind turbines.

The study will explore an offshore test site in Singapore's waters.

By using these complementary energy systems, continuous power output can be provided round the clock, while reducing the amount of marine space required for operations, said the three parties.

Ms Cindy Lim, chief executive of Keppel Infrastructure, said: "With limited land space in Singapore, moving into waters offshore presents opportunities to unlock the potential for more diversified renewable energy sources."

This would enhance energy secu-



The Sembcorp Tengeh Floating Solar Farm. If the proposed hybrid system is found feasible, the parties involved plan to design and deploy a pilot system with at least 100MW of renewable energy capacity – enough to power 3,000 four-room Housing Board flats a day. This can be scaled up over time.
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rity and support Singapore's transition to a greener energy mix, she added.

The memorandum of understanding for the study was signed on Thursday at the Asia Clean Energy Summit 2022, which is part of the Singapore International Energy Week held at Marina Bay Sands.

Keppel Infrastructure said the partnership will leverage its expertise in developing and operating efficient and reliable energy and environmental infrastructure, electricity

retailing, as well as the development of end-to-end low-carbon solutions, including renewable energy systems.

NUS' Solar Energy Research Institute and the Energy Research Institute @ NTU will provide their know-how in areas such as pontoon-based floating solar structure and its integration with other ocean renewable energy systems, as well as how to overcome the challenges of high wind and wave forces on the mooring and anchoring system.

Professor Madhavi Srinivasan, executive director of the NTU institute, said the deployment of the renewable energy system in offshore conditions will face challenges such as the accumulation of micro-organisms on submerged structures and corrosion.

"We have unique expertise and the necessary experience that will be critical in resolving such issues," he said.

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