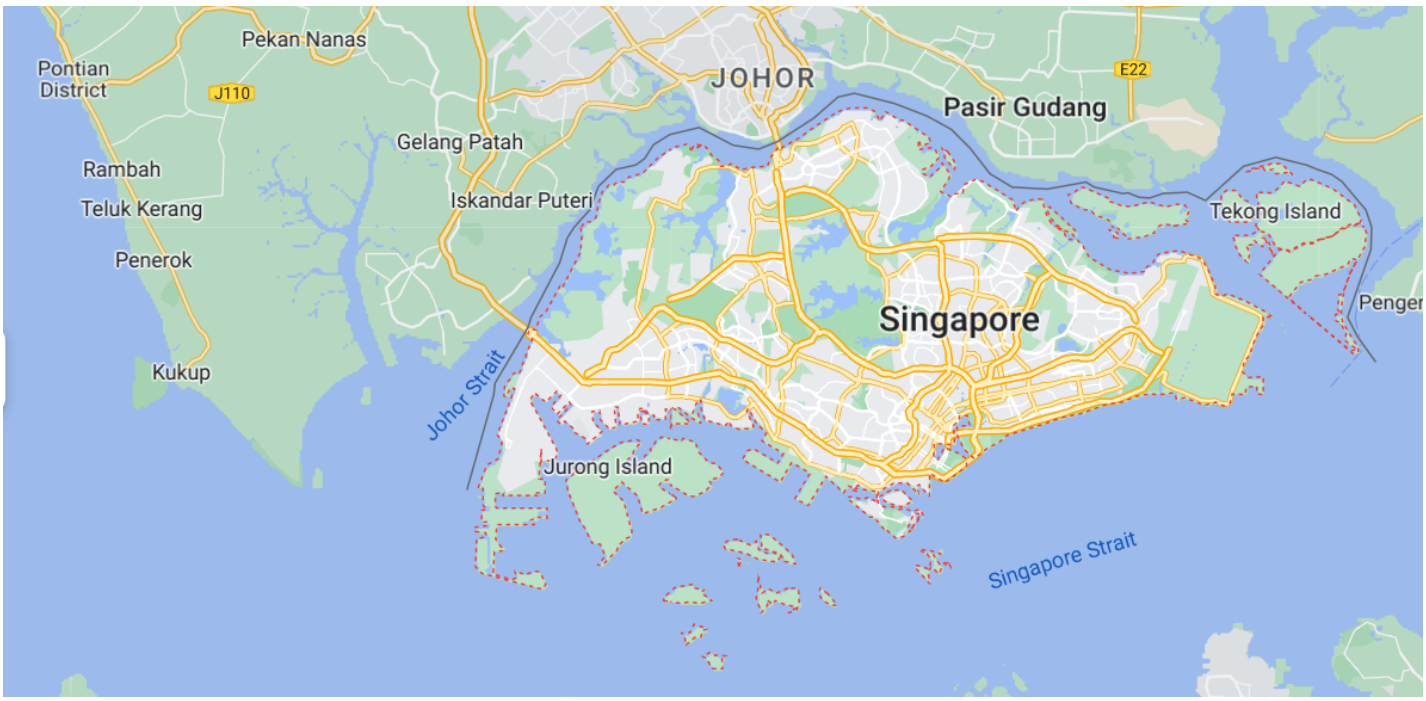

Courtesy of Google maps.

CLEAN POWER

Singapore Explores Hybrid Wind, Solar, Tidal, & Wave Energy System

Researchers in Singapore are exploring whether a hybrid renewable energy system in the waters offshore is a possibility.

By Steve Hanley
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8 Comments

Singapore has lots of inhabitants but not a lot of available land for solar panels and wind turbines. It does have a lot of open ocean to the south in the Singapore Strait, however. What it wants is renewable energy to power its economy that is reliable, consistent, and dependable.

A collaboration between Keppel Infrastructure, the National University of Singapore and Nanyang Technological University will conduct a study to determine whether those waters can used to create a hybrid renewable energy system for Singapore that combines offshore wind, floating solar, tidal, and wave power. If the concept is determined to be feasible, the three organizations plan to design and deploy a pilot system with at least 100 MW of renewable energy capacity that can be scaled up in the future. After successfully implementing the novel system in Singapore, the aim is to roll out the innovation in other regions in Asia and beyond, according to a report in the *Straits Times*.

All Of The Above For Singapore

The system would be comprised of modular floating solar platforms with the flexibility to integrate other renewable 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 the waters around Singapore. 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, the three parties said.

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 security 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.

The NUS Solar Energy Research Institute and the Energy Research Institute at 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,” she said.