

PROJECT PART OF SINGAPORE'S RENEWABLE-ENERGY GOALS

World's largest floating solar test-bed launched at Tengeh Reservoir

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SINGAPORE—Frequent users of the Tuas Checkpoint may have noticed something unusual going on at Tengeh Reservoir recently — rows and rows of floating solar panels.

Singapore now hosts the world's largest floating solar test-bed atop a hectare of water at the reservoir, and it will be feeding energy from the sun to the national power grid from as soon as December.

Over at Semakau Island, an area the size of eight soccer fields has been cleared to make way for a microgrid system that can consolidate power generated from multiple renewable energy sources — solar, wind, tidal, diesel, and power-to-gas technologies — to power the island's operations.

When the S\$11 million floating solar photovoltaic test-bed and the S\$20 million microgrid system projects are completed by next year, they will collectively produce 4MW of electricity — enough to power up to 1,000 four-room HDB flats at any one time.

These two multi-million-dollar projects were announced by Environment and Water Resources Minister Masa-

gos Zulkifli at the opening of the Asia Clean Energy Summit yesterday, as he outlined Singapore's ambition to play its part in addressing climate change and to contribute to the Association of South-east Asian Nations' (Asean) renewable-energy goals.

With the Paris Agreement to reduce greenhouse gas emissions set to come into force on Nov 4, he said: "Clean energy solutions will play a crucial role as countries work towards a carbon-constrained future."

Clean energy test-beds such as the one in Tengeh Reservoir, will "allow Singapore to develop a leadership role in renewable-energy development in the region", Mr Masagos added.

The floating solar system at the reservoir, although three years late in becoming operational, is part of the Sustainable Singapore Blueprint 2015 to plan for the Republic's next phase of sustainable development until 2030.

Over the past five months, nine different systems from seven companies — including three local start-ups: Sunseap, SolarGy, and BBR Greentech — were installed at the reservoir.

The last one by Italy's Enel Green Power is projected to be installed by December.

Once the 10 systems are hooked up

ENERGY BOOST

● When the S\$11 million floating solar photovoltaic test-bed and the S\$20 million microgrid system projects are completed by next year, they will collectively produce four megawatts of electricity — enough to power up to 1,000 four-room HDB flats at any one time.

to the national grid, they will be pitted against one another to see which system would be the most economically viable under the same amount of sunlight.

Besides energy yield and cost, the systems will also be judged by their temperature (cooler solar panels are more energy-efficient), movement on water (to see if they are drifting too far or sinking), and environmental impact (evaporation rate, water quality and interference with wildlife).

The Solar Energy Institute of Singapore at the National University of Singapore is managing the scientific evaluation of the test-bed led by the

Economic Development Board (EDB) and national water agency PUB.

After about six months, the two most efficient systems will be selected for deployment 10 times their current size at 1MW each for further tests.

When asked about the three-year delay in getting the test-bed up and running, Mr Goh Chee Kiong, EDB's executive director of Cleantech, cited the logistical and technical complexities involved.

They included the difficulty in securing the "sensitive location" and the need to ensure that there are substations big enough to accept huge electrical loads.