

Notable renewable projects in the APAC region

Solar energy

- **Peak Floating Photovoltaic Solar Power Facility (Vietnam, fully operational):** 47.5MW solar power facility with power output of about 70GWh per year. This facility successfully connected to the grid in May 2019 and was the first large-scale floating solar project in Southeast Asia.
- **Sembcorp Floating Solar Farm (Singapore, fully operational):** 60MW floating solar facility with 122,000 panels covering over 45 hectares of reservoir. This was one of the largest floating solar farms in the world in 2022.
- **Mudigubba Solar Park (India, under construction):** 2,000MW solar power plant which is expected to complete construction in Q4 2023.
- **Australia-Asia PowerLink (Australia-Singapore, under construction):** the world's largest solar plant and battery storage facility, with the generated renewable energy transported from Australia to Singapore via the world's longest (4,200km) submarine power cable. The project is expected to reach financial closing in Q4 2023 and start generating and transmitting electricity to Singapore in 2027. Once it reaches full capacity, the project should be able to meet up to 15% of Singapore's electricity demands.
- **Ubol Ratana Dam Hydro-Floating Solar Hybrid Project (Thailand, under construction):** 16 floating solar farms scheduled to commence commercial operations within 2023, with an expected combined capacity of more than 2.7GW by 2037. One of these farms is expected to be the world's largest floating hydro-solar farm which combines solar, hydropower and energy storage systems.
- **3.5GW Solar Mega Project (Indonesia-Singapore, planned):** on completion, this project will have up to 12GW of energy storage capacity and could produce sufficient energy to power Singapore.

Wind energy

- **Formosa 1 Offshore Wind Project (Taiwan, fully operational):** 128MW project which was the first commercial-scale offshore wind project in APAC when completed in October 2019.
- **Akita Noshiro Offshore Wind Project (Japan, fully operational):** 140MW project with 33 turbines installed. Fully operational since January 2023.
- **Ulanqab Wind Power Project (China, fully operational):** 500MW plus 150MW project which became fully operational on 8 May 2022 and is expected to generate 1.6TWh of power per year. This wind power grid-connected project has the largest energy storage configuration in the Inner Mongolia Autonomous Region.
- **La Gan Offshore Wind Farm (Vietnam, under construction):** estimated capacity of 3.5GW, sufficient to power more than seven million households. This wind farm is expected to be one of the first large-scale offshore wind farms in Vietnam.
- **Hainan Offshore Wind Project (China, under construction):** 1GW project expected to be completed in 2027.

Geothermal energy

- **Bac-Man Geothermal Power Plant (Philippines, fully operational):** 130MW project operational since 1993. Construction of the 29MW Palayan Binary Power Plant is underway to expand the capacity of this project by using the binary cycle power generation system to make effective use of brine previously discharged from existing flash type geothermal power plant as heat source.
- **Minami-Kayabe Geothermal Plant (Japan, under construction):** 6.5MW project in Hokkaido, scheduled to complete in 2023. Features a binary cycle power generation system using only the heat of hot water to generate power, with all the water being returned underground.
- **Gunung Ciremai Geothermal Power Plant (Indonesia, planned):** 110MW project which is scheduled to commence construction in 2024 and get commissioned in 2025.

Hydropower

- **Baihetan Hydropower Station (China, fully operational):** 16GW hydroelectric facility which became fully operational on 20 December 2022. This is the world's second largest hydropower station. Together with the upstream Wudongde hydropower project (fully operational in June 2021) and the downstream Xiluodu and Xiangjiaba hydroelectric projects (fully operational in June and July 2014 respectively), the four projects are capable of transferring up to 190TWh of electricity a year to the eastern part of China at full capacity.
- **80MW Stung Pursat and 150MW Stung Tatai Leu Hydropower Projects (Cambodia, under construction):** both projects are expected to complete and start generating hydroelectricity by 2026.
- **Kelantan Hydropower Project (Malaysia, under construction):** 300MW hydropower project scheduled to complete in Q2 2026.

Ocean energy (wave and tidal)

- **Sihwa Tidal Power Plant (South Korea, fully operational):** installed capacity of 254MW which produces over 550GWh per year. Commenced full operation in August 2011.
- **Sentosa Floating Tidal Turbine (Singapore, operational):** the first commercialised marine renewable energy project in Singapore. Utilises the tide flow to generate predictable and efficient renewable energy for the lighting along the Sentosa Boardwalk.
- **Kavaratti Ocean Thermal Energy Conversion Project (India, planned):** India's National Institute of Ocean Technology (NIOT) is developing the first ever ocean thermal energy conversion (OTEC) powered desalination plant in Kavaratti, Lakshadweep Islands. The desalination plant will be powered by 65KW of power generated from OTEC.
- **Sittwe Wave Energy Reclamation Project (Myanmar, planned):** wave energy project implemented in Sittwe along the Pyisakanadi River, where there are tidal currents of 4-6 knots during spring tides and a tidal range of 5 to 7 metres.

Bioenergy

- **Teluk Intan Biomass Power Plant (Malaysia, operational):** 12.5MW project commissioned in June 2014. The project utilises empty fruit bunches, a waste effluent after palm oil is extracted, as feedstock.