

OFFSHORE PACIFIC WIND POWER

By John Kosowatz

Wind power is the fastest growing source of electric generation, thanks to decreasing costs and efforts to decarbonize around the globe, and offshore projects are starting to fuel that growth. **The Global Wind Energy Council reported the annual number of offshore wind installations has grown an average of 24 percent each year from 2010 to 2020.** Europe now has 25 GW of total installed offshore wind capacity, according to Wind Europe, for 5,402 grid-connected wind turbines across 12 countries. The U.S. lags, with just two operational offshore projects in Rhode Island and Virginia generating 42 MW of power. That will increase as states have established almost 4.5 GW of offshore wind procurement targets, according to American Clean Power. Pacific nations are following suit, led by China, which already leads the world in offshore installed capacity. Here is a quick look at what some Pacific countries are building.

CHINA



China generates more offshore wind power than any other nation, with 11 GW of capacity installed as of January 2021.

That is 31 percent of the world's wind power capacity, according to S&P Global's IHS Markit. Another 52 GW is expected to be commissioned between 2020 and 2030. China National Offshore Oil Corporation's first project is a 300-MW wind farm using 67 turbines off northeast China's Jiangsu province. IHS Markit projects China's offshore wind capacity will grow a whopping 743 percent, from 7 GW in 2019 to 59 GW in 2030.

JAPAN



The first commercial offshore project, the Akita Noshiro offshore wind farm, is under construction with fixed foundations and will have a combined capacity of 139 MW.

Japan has ambitious plans to develop untapped offshore sites. In 2018, the government enacted legislation that created a certification and licensing system for development. Some officials believe the country can generate up to 45 GW of power by 2040. In 2021, a consortium led by Toda Corporation was selected to build the country's first floating wind power farm off Nagasaki Prefecture. It will generate almost 17 MW of power.

AUSTRALIA



Australia, with 79 percent of its electrical generating capacity coming primarily from coal and gas, is only now starting its move to offshore wind. There currently are not any operational offshore wind farms, but three are in the planning stages. The first proposed project is a 2.2-MW project off Gippsland that could begin operating in 2025.

The Victorian government has announced offshore targets of 2 GW by 2032, 4 GW by 2035, and 9 GW by 2040.

But acceleration could be hindered by Australia's lack of streamlined regulations: Developers must navigate various state and federal agencies. Much of the country's offshore potential also lies in deeper seas, where floating foundations will be needed.

TAIWAN



Taiwan is one of the fastest growing offshore markets. It plans to boost its current 1.7-GW offshore wind capacity to 10.7 GW by 2030.

The first commercial offshore project, Formosa 1, completed first phase construction in 2019 and features 20 6-MW turbines on monopile foundations. It has eight offshore projects under construction.