

The World's First Floating Wind and PV Power Integration Project Connected to Power Grid in Shandong

Recently, the 20 MW floating PV project completed the 500 kW power generation demonstration successfully in Shandong Peninsula South #3 Offshore Wind Farm - the world's first floating wind and PV power project in deep and distant waters.



The project is located in the 30 m deep waters in the southern sea of Haiyang City, Shandong Province, 30 km offshore. The 500 kW floating PV systems consist of two ring-shaped floating units, each of which has an installed capacity of 250 kW. Each floating unit consists of a ring-shaped wave-resistant floater, a high-strength film resistant to the marine environment, and a PV system. A total of 770 PV modules are installed on a floater with a diameter of 53 meters and an area equivalent to four standard basketball courts. The clean electricity is collected to the inverters and then transmitted to the #3 wind farm platform, from which the electricity is transmitted to the land through the offshore step-up substation.

According to the project manager, the PV modules are connected to the flexible films through prefabricated sliding rails, and are in contact with the seawater through the films. In this way, the PV modules are cooled by the seawater, thus increasing the power generation efficiency by more than 10%.

The project is the first wind and PV power integration project supported by the Government of Shandong Province. The successful power generation of the project is an important milestone, and also a major breakthrough in the research on floating wind and PV integration projects in deep and distant waters.