TAINAN, Taiwan -- National Cheng Kung University (NCKU) has installed a high-concentration photovoltaic system with five-kilowatt output and an advanced sun-tracking unit, which is said to be the first of its kind in Taiwan, officials at the Tainan-based university said yesterday.

According to the university, the solar power system can increase the concentration of sunlight 476 times and convert up to 30 percent of the sunlight received into electricity.

Yang Hong-tzer -- project leader and a professor at NCKU’s Department of Electrical Engineering -- explained that the high-concentration solar cell is the new trend in photovoltaic power conversion because it can work as well as the conventional versions but at higher efficiency, lower cost, and smaller size.

In addition, the system -- designed by university researchers and manufactured by the Hsinchu-based Spirox Corp. -- is also equipped with a high-sensitivity sun tracker that allows optimal use of direct sunlight.

Yang explained that the NCKU-Spirox system is the first in Taiwan to be equipped with two-axis adjustment capability, which allows the solar panels to move in both pitch and yaw to better receive the sunlight.

According to the university, a miniature model of the system, with a 1.5-kilowatts output, was first installed at the Spirox headquarters in September and a month later, the five-kilowatt version was installed at the university campus to expand the scale of test run.

University officials reported that the five-kilowatt system is now fully operational and will provide the campus with "clean" power.

The successful results obtained in the test run will help enhance the technology edge of the domestic photovoltaic industry, and the system's commercialized version, with greater output, may soon enter the market, they added.