

INNOVATION

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LiDAR wind buoys to be used in China



The Fraunhofer IWES LiDAR buoy has already been used multiple times for offshore measuring. (Courtesy: Fraunhofer IWES)

Titan Technologies Corporation has ordered two Fraunhofer IWES LiDAR measuring buoys for the surveying of the Zhangpu and Changle offshore wind farms planned for off the coast of China's Fujian province. This will be the first time a floating LiDAR system will be used for offshore wind measurements in China. The buoys will be used to precisely measure the wind conditions in the designated locations so as to allow precise calculation of the wind farm's electricity yield. China Three Gorges Corporation (CTG) owns the projected wind farms.

Many business hubs are close to the coast in China. This, coupled with the state's expansion targets, is stimulating the constant growth of the offshore wind energy sector in China. CTG received the contract to build two wind farms with a capacity of 4 GW altogether and wants to obtain precise measurements of the conditions on-site using Fraunhofer IWES LiDAR buoy technology. Titan Technologies Corporation

has been engaged by CTG to perform the measurements. The company will also be completing the installation work, servicing, and data evaluation.

"We have been working with Fraunhofer for years and appreciate their proven, highly deployable solutions for complex operational conditions. Paving the way for CTG's vision of reliable offshore wind energy for China is an exciting and honorable assignment to which we contribute years of wind energy experience," said John Feng, chairman, Titan Technologies Corporation.

By providing comprehensive feedback on the buoy's performance under the specific operation conditions found in China, Titan contributes to Fraunhofer's sound understanding of the requirements of varying environmental loads, e.g. typhoons.

"We welcome the order from Titan Technologies Corp. and believe that CTG's decision to use two Fraunhofer

IWES LiDAR buoys could set an example in China,” said Bernhard Lange, head of Wind Farm Planning and Operation at Fraunhofer.

The Fraunhofer IWES LiDAR buoy has already been used multiple times for offshore measuring, most recently off the Scottish coast for the projected Firth of Forth wind farm. It measures wind speed up to 200 meters above the surface of the water. The buoy not only passed the Carbon Trust tests for floating LiDAR devices, but surpassed the requirements for accuracy and availability. The buoy’s durability is evident in its robust build with double-encapsulated LiDAR and redundant power supply.

Fraunhofer IWES researchers developed not only the design but also the correction algorithm, which eliminates buoy movements from the measurements. This algorithm guarantees an extremely precise measurement, even in strong seas, delivering data that are as reliable as those collected with a fixed met mast.

Fraunhofer is the leading organization for applied research in Europe. It encompasses 66 institutes and research facilities in locations throughout Germany. It employs almost 24,000 people and has an annual research budget of 2 billion euros. Industry contracts and public research projects account for 70 percent of Fraunhofer’s budget. Fraunhofer has branches in Europe, North America, and South America pursuing international projects. Titan Technologies Co., Ltd., incorporated in 2009, is a system integrator, solution provider, and smart manufacturer. The company is principally engaged in smart manufacturing through products, services, and technology that enables its customers to conduct manufacturing in a cleaner, safer, more reliable, and efficient way. ↴

Source: Fraunhofer IWES

For more information, go to www.iwes.fraunhofer.de/en.html

New wind-power generator uses direct drive and solar for added efficiencies

A new design for wind-power generators uses a conical vortex that moves air through the unit with as little interference as possible, reducing heat and improving efficiency.

The cowl-housed design addresses many of the problems of the wind turbines of today — height requirements, whoosh noise, high maintenance costs, downtime for maintenance, high-wind and low-wind downtime, and limited access to transmission lines — to name just a few. The design also eliminates the weight, drag, and maintenance of a transmission and drive chain since it uses direct drive.

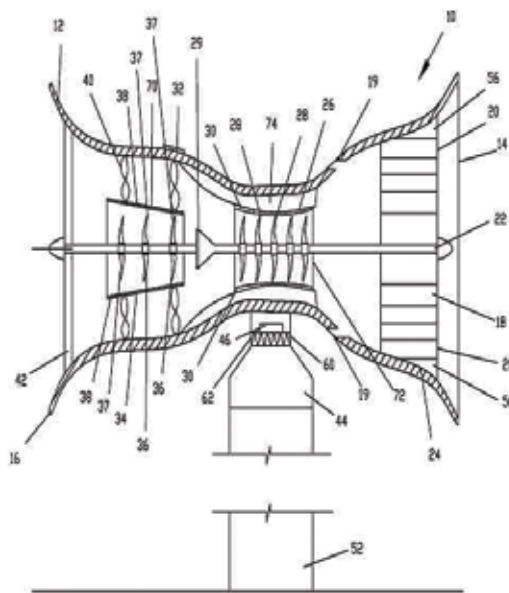
Taking advantage of a second renewable energy source, the patented design uses solar cells to provide power when wind speed is too low or too high. Unlike conventional wind turbines, the technology covered by this patent is scalable, so units can be manufactured in various sizes and generating capabilities. In addition to industrial, commercial, and residential applications, this design is ideal for providing power to charge electric vehicles.

U.S. Patent No. 8,269,368 for a “Wind and Solar Electric Generator” is exclusively represented by leading patent brokerage firm IPOfferings LLC.

“The ’368 patent represents what is absolutely the next generation in wind turbines,” said Alec Schibanoff, vice president of IPOfferings. “Its patented direct-drive design eliminates the cost, drag, and maintenance of the transmissions and drive chains that current generation of wind turbines use to transmit power from the blades to the actual power-generation unit. The question people ask when they see a brilliant invention is always the same: Why didn’t someone think of this before? It is amazing that the wind-power industry has not considered direct-drive design in their wind-power generation units.” ↴

Source: IPOfferings

For information, contact IPOfferings at patents@IPOfferings.com



This figure from the patent shows how the blades in the turbine are essentially the armatures of the dynamo. According to IPOfferings, this design eliminates the need for a transmission and drive chain, and that dramatically reduces weight and drag, as well as both assembly and maintenance costs. (Courtesy: IP Offerings)