

WindCube Nacelle

Feedforward turbine control for improved energy production and efficiency



Key Benefits

Proactive control for improved efficiency and lower LCOE

WindCube Nacelle delivers accurate wind data hundreds of meters in front of the rotor plane, allowing developers and operators to maximize energy capture, reduce Levelized Cost of Energy (LCOE), and improve efficiency.

Innovation in an increasingly challenging turbine market

Typical load reductions of 10-20% enable using longer blades and/or higher towers for a given class, or upgrading the wind class of a given turbine platform. This enables significant energy production increases while maintaining a streamlined portfolio of turbine products.

Seamless integration using proven designs and practices

Turbine control is an extension of existing WindCube Nacelle lidar technology, and it has been shown to integrate seamlessly with turbine manufacturers' projects. This simplicity of integration extends to wind developers and operators as well, further enhancing the manufacturer's value proposition.

The simplicity and reliability of the industry leader

WindCube Nacelle is already the industry standard for LAC, operating in large fleets in China and increasing locations around the globe.

WindCube® Nacelle enables turbine manufacturers and integrators to rapidly adopt and market Lidar-Assisted Control (LAC) — creating numerous benefits for themselves and their end users.

By fully characterizing the incoming wind field, the system enables proactive control optimizations for changing conditions. This can result in significantly extended wind turbine design limits, reduced loads, improved safety and resilience to extreme events, and increased energy capture.

WindCube Nacelle lets you reach new levels of efficiency, reliability, and effectiveness — improving your place in the market and setting your turbine portfolio apart.



WindCube Nacelle at a glance

Applications

- Turbine-integrated LAC
- Performance optimizations for wind development and operations

Key features

Comprehensive measurement of all essential incoming wind conditions, including rotor averaged wind speed, wind direction, shear, and turbulence, at multiple distances before it reaches the turbine rotor

Sophisticated information processing allowing for quick, confident turbine control decisions

Constant accuracy from 10 to 200 meters with 10 configurable measurement distances

Straightforward adoption with lightweight, efficiently designed system components and proven engineering

Vaisala: Support and services you can count on

Wind energy isn't just about technology. It's about having the backing of a global partner that can directly support your business end-to-end, with complementary services, robust customer service, and consultation.

Today, WindCube lidar technology — trusted by the world's largest wind energy clients, as well as plenty of smaller, emerging ones — is also backed by Vaisala's 80 years of experience and worldwide services.

Testimonial



Goldwind, one of the world's leading turbine technology providers, chose Vaisala WindCube Nacelle for its turbine control initiative, validating the suitability and reliability of Vaisala technology to this promising application.

Since 2015, Vaisala has delivered more than 150 systems to Goldwind for this purpose.

“Since deployment, we have been successfully operating our Vaisala technology with great benefit to our project. Vaisala has enabled us to innovate, create new value for our customers, and help push the wind industry forward.”



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