

Lidar proves itself in South America

VAISALA

Case Study



The client:

Ventus

Vaisala solution:

WindCube vertical profiling lidar

Using WindCube technologies for Wind Resource Assessment campaign

In Latin, ventus means wind, and the name is a fitting description of this Latin American engineering and construction company's core expertise. Ventus provides turnkey wind solutions supported by ground-based lidar, nacelle-mounted lidar, and met masts, and the company is active in Uruguay, Argentina, Chile, and Colombia. All of these countries are seeing increased demand and opportunity for wind energy, but they require accurate assessment of local wind resources and power performance in different regulatory frameworks.

THE CHALLENGE:

Obtain bankable, highly correlated wind resource

For this project, the objective of the Ventus Renewable Energy Resource and Project Development team was to validate on-site wind resources, guided by specific Argentinian regulations: When the average distance between a farm's wind turbines and a met mast exceeds 6km, the wind resources at the turbine site must be validated by a remote sensing device. Ventus wanted to ensure a specific correlation coefficient between the location of the met mast and the final location of the future turbines.

"WindCube is highly recognized in the market, and there are many studies and lidar classifications available to the public ... The fact that WindCube is in stage 3 of the DNV classification and is in compliance with the standard IEC 61400-12-1 ed. 2 allows it to perform power curve and wind resource measurements [that are] bankable and contractual."

Vasilii Netesov

Head of O&M, Ventus Renewable Resource and Project Development departments

THE APPROACH:

Design comprehensive measurement campaign to evaluate lidar/met mast correlation

For this project, Ventus relied on WindCube® vertical profiling lidar to assess data variations between the location of a met mast and the location of the future turbines, where the lidar was deployed.

The height of the met mast is 100m, but the team configured the lidar to measure up to 150m for a more direct correlation with a met mast height and beyond (the new WindCube enhancements allow measurement up to 300m).

THE RESULTS:

Detailed analysis, high data correlation, enhanced understanding of the site conditions

Ventus was pleased to formally validate WindCube's WRA data at a distance of more than 6km. The team says it obtained definitive results after comparing the lidar data with the met mast data in accordance with the IEC 61400-12-1 ed.2 (2017) standard. They found a high (98%) wind speed correlation between the lidar and the met mast.

Why Vaisala?

We are innovators, scientists, and discoverers who are helping fundamentally change how the world is powered. Vaisala elevates wind and solar customers around the globe so they can meet the greatest energy challenges of our time. Our pioneering approach reflects our priorities of thoughtful evolution in a time of change and extending our legacy of leadership.

Vaisala is the only company to offer 360° of weather intelligence for smarter renewable energy, nearly anywhere on the planet. Every solution benefits from our 85+ years of experience, deployments in 170+ countries, and unrivaled thought leadership.

Our innovation story, like the renewable energy story, continues.

