Leveraging lidar in complex terrain

VAISALA

Case Study

The client:

Meventus

Vaisala solution:

WindCube

THE CHALLENGE:

Conduct wind resource assessments in promising, hard-to-assess locations

Meventus is a renewable energy consultancy with offices in Norway, Denmark, and Sweden. They have substantial experience in cold climates and complex terrain, and they have been using lidar for wind resource assessment and other purposes for more than 10 years.

Meventus faced the core challenge of reliably assessing sites — whether onshore or offshore — where installing a met mast is impractical, too expensive, or even impossible given the terrain. Many of their clients are interested in challenging wind farm locations (including Antarctica), but in order to provide the service, Meventus needed a cost-effective, easy-to-deploy, bankable alternative to more traditional measurement technology.

THE APPROACH:

WindCube, a power supply, and data they can trust

By pairing a WindCube® vertical profiler with a power supply they provide, Meventus provides a rugged, self-contained measurement package they can deploy almost anywhere.

The company uses WindCube in part because of its low power consumption, mobility, and small size. When operating on a power supply off the grid, any reduction in power draw can have enormous cost benefits, since returning to a site to replace the power supply (which sometimes requires a helicopter) is extremely expensive and interruptive to a measurement campaign. Fortunately, Meventus has found that it can usually "set and forget" their lidar units.

"[WindCube lidar] is much easier to handle on complex terrain and remote sites. You can move it around with one or two technicians, you don't need a complete installation team, and you don't need that many permits. That speed is crucial, especially when you talk about costs."

Peter Kil Rasmussen
Operations Manager, Meventus

The self-contained, simplified nature of the lidar units also impacts measurement reliability. Unlike continuous wave lidars, for example, WindCube has no moving parts and measures wind direction without a separate instrument mounted to it. This reduces mechanical complexity, failure points, and measurement errors that are common in complex terrain.

THE RESULTS:

Better data, successful wind projects

Meventus can now conduct wind resource assessments that would otherwise be impossible, expanding the range of sites they can survey and meeting their clients' demand for bankable energy production estimates. They can conduct short- or long-term measurement campaigns with confidence in WindCube's reliability, data quality, and ease of use.

"It just makes a lot of sense for us in the terrain that we work in," says Peter Kil Rasmussen, operations manager. "Our clients can also shop in one place. They don't need to find a platform and go to a different place to find a power pack. WindCube helps us fit everything together for them."

The company also says that the low-impact installation and mobility of the lidar units are helpful as the public becomes more concerned about protecting landscapes and vegetation.

With this offering of lidars as part of their measurement arsenal, Meventus is expanding its capabilities and giving some of the world's innovative wind developers the tools and outcomes they need.

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.

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