

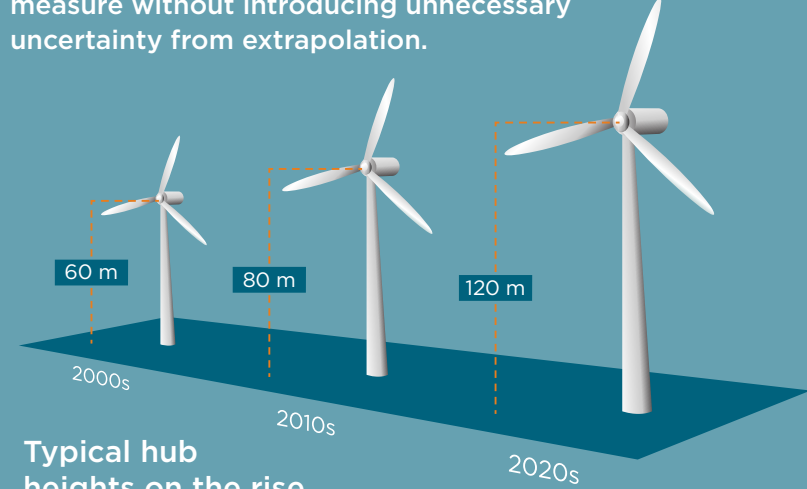
5 Ways Lidar Transforms Wind Energy

Lidar is changing our industry — creating incredible value for developers, investors, manufacturers, and operators. We asked two industry experts to weigh in using their deep experience deploying lidar around the world.

1

Lidars measure precisely at even the highest hub heights.

A few years ago, turbine hub heights were typically 60m. Now they're routinely 120m and above — too high for met mast to measure without introducing unnecessary uncertainty from extrapolation.



“The higher the turbine hub heights we’re getting, the more uncertain extrapolating shear is from met towers. Today we have at least one Vaisala WindCube® at every development project we have.”

— Phillip Hurlbut
Meteorologist, Pattern Development

Lidar enables multi-factor assessments and better power curve models.

2

“You can start thinking about everything you could input and come up with a multidimensional power curve, which would be more accurate than the ones provided in pre-construction from a single point.”

Philippe Pontbriand

Energy Resources Director,
RES Americas, Inc.



The rich data from lidar enables developers and operators to formulate more precise power curves using multiple inputs at different heights.

3

Not using lidar can actually introduce bias.

Extrapolating from single-point met mast data can harm the project — regardless of the fact that it’s “how things have always been done.”

“If we’re not using remote sensing devices, we’re at risk to actually introduce bias. For most of these met masts, we’ve seen what we call shear relaxation — a 0.9% over-prediction when we use the mast alone, and 1.8% in energy.”

— Philippe Pontbriand

Lidar makes investors more confident, thereby increasing your chances for funding.

4

“That’s one reason why we’re pushing for remote sensing devices: to provide investors with more confidence. The remote sensing device delivers cheaper, faster, and safer resource assessment campaigns.”

— Philippe Pontbriand

Bankable data, rigorously validated measurements, savings in deployment time and money — these things are just as exciting to your investors as they are to you.

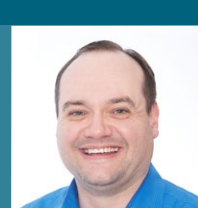
5

Lidar can go nearly anywhere.

Offshore? Yes. Places where you can’t build met masts? Yes. Alongside traditional met mast installations for reducing uncertainty? Yes.

“Those taller met towers cost a lot more and take a lot longer to permit, and they’re not portable. We have done standalone use with the lidars in areas where met towers are hard to install.”

Phillippe Hurlbut



Vaisala is changing 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 renewable energy solutions are guided by several key priorities:



Thoughtful evolution

Remain a pioneer in renewable energy, always providing sensible, trusted solutions at the leading edge of R&D.



Smarter at every stage

Provide end-to-end weather and environmental insights throughout the renewable energy life cycle.



Legacy of leadership

Extend our proven track record and global trust to reach more customers in more ways.