



Wind turbines
are a big
investment.

Are you happy with your ROI? Our laser-based atmospheric measurement products and services offer continuous wind speed, temperature, and density reporting from turbine-mounted or ground-based platforms. Real-time determination of wind gusts, shear, and turbulence help 'see' and protect your valuable turbine equipment. This will help your turbines spin and not your budgets.

**Opto
Atmospherics**

*Atmospheric intelligence by
knowing more — sooner.*

Why Vision Matters

Having critical wind parameters including speed, direction, temperature and density in advance of incidence on your turbine enables a level of optimization never previously possible. Our intelligent wind systems can also provide unprecedented measurement of parameters such as shear, turbulence, in-flow angles and wake effects. In addition to the immediate benefits of improved power production and gust mitigation, this technology enables a new generation of turbine designs with bigger rotors, improved availability, and longer maintenance cycles.

Site assessment and operational wind farms will also benefit from higher resolution atmospheric measurements, leading to improved assessments, optimized layouts, better forecasting, and reduced grid integration costs. With additional predictive analytic capability, site operators can optimize when major repairs are performed, enabling smarter preventive maintenance, reduced down time, and ultimately lower maintenance costs.

Early Detection

Our Direct Detection LIDAR technology uses an ultraviolet laser to measure wind speed and direction, density, and temperature, at multiple ranges simultaneously. With the ability to make measurements directly on air molecules (i.e., no aerosols/particles required), long range measurements and continuous operation in clear air have been demonstrated. Turbine-mounted versions can even be configured with no moving parts, adding to system reliability. These eye-safe systems are designed for 24/7 operation under all environmental conditions.

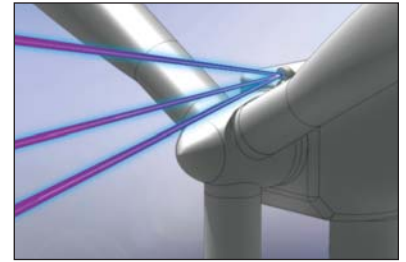
Predictive Analytics Software to Improve Turbine and Wind Farm Operation

Our Predictive Analytics software enables real-time monitoring of turbine and wind farm (SCADA) data that can result in significant reductions in turbine downtime, maximizing revenue per turbine. Anticipating incident wind conditions in combination with intelligent modeling of steady state turbine operating conditions also enables prediction of potential disabling events.



Optimizer™ Wind LIDAR for Turbine Control

The Optimizer, a turbine-mounted system for single turbine control, can combine increased efficiency and load reduction based on knowledge of approaching wind anomalies, reducing wear on dynamic components resulting in lower maintenance and repair costs.



Optimizer Features:

- Nacelle-mounted (other packaged configurations)
- 300 m operating range
- Wind speed and direction measurements at 10 ranges simultaneously
- 1 Hz update rate
- 0.5 m/s wind speed accuracy
- 0.5° wind direction accuracy

An Aeronautics Engineering Heritage

Our next-generation, patented capabilities have been developed and tested over several decades working with NASA, NOAA, and the U.S. Departments of Defense and Energy. OptoAtmospherics offers a level of atmospheric measurement capability that is unparalleled, with proven performance in space, airborne, and harsh ground environments.

Contact

Contact us today to discuss your atmospheric measurement needs and opportunities to evaluate our products: sales@optoatmospherics.com

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