

**VAISALA**

# Smarter at every stage: Vaisala's wind and solar solutions advance renewable energy

Solutions Brochure



# Solutions across the wind and solar life cycles

Vaisala understands the potential – and the stakes – of advancing renewable energy. That's why we've built the most comprehensive set of weather and environmental technologies available and focused them on the wind and solar industries.

Anchored by proven, globally trusted sensors and data services, Vaisala's renewable energy solutions are unrivaled in their comprehensiveness, integration, and reliability. Vaisala is the only company on the planet providing this kind of end-to-end value – a value that is reinforced by the only global manufacturing and service network of its kind.

Whatever your role in renewable energy, wherever your projects are in the world, Vaisala will help you to meet the most significant energy challenges of our time.

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# Wind energy

## Global trust, unmatched performance

Recent evolutions in the wind industry – aided by Vaisala technologies, including WindCube® wind lidar – have given developers, operators, and manufacturers better, bankable data with increased agility and simplicity. This has reduced the risks in wind energy output and the global cost of energy for both onshore and offshore wind farms. It has also unleashed some of the most imaginative and useful innovations in the history of energy.

We're continuing to help our customers push the wind industry into new frontiers, including ambitious offshore projects. Many of today's projects would be prohibitively risky without Vaisala's modern, end-to-end solutions providing assurance and constant awareness. But now they're routine.

### Key benefits:

- Reduced uncertainty, improving financing and protecting profitability, from onshore complex terrain to remote offshore
- Revolutionary data quality and suitability for tomorrow's turbines
- Increased uptime and safety for assets and personnel
- Minimized operating costs, optimized performance, and lower LCOE
- Simplification of burdensome processes, such as PPT and WRA
- Improved community acceptance and support for wind energy
- Informed, data-driven turbine selection and wind farm layout
- Integration of historical data and excellent forecasting for big-picture visibility



## Wind energy solutions and applications

		Prospecting and development	Construction and commissioning	Operations and life management
		<ul style="list-style-type: none"> <li>Site prospection</li> <li>Site suitability</li> <li>Wind resource assessment</li> <li>Farm extension</li> </ul>	<ul style="list-style-type: none"> <li>PPT – contractual power curve</li> <li>Offshore ship operations for build-up</li> </ul>	<ul style="list-style-type: none"> <li>Permanent wind monitoring</li> <li>Weather and obstruction light monitoring</li> <li>PPT – performance verification</li> <li>Retrofit and performance increase</li> <li>Site O&amp;M</li> <li>Offshore ship operations for maintenance</li> <li>Minutes/hour/day ahead forecasting</li> <li>Repowering</li> </ul>
Wind lidars	Vertical profiler (WindCube)	●	●	●
	Vertical profiler for offshore (WindCube Offshore)	●	●	●
	Long-range scanning (WindCube Scan)	●		●
	Nacelle-mounted (WindCube Nacelle)		●	●
Sensors & systems	Ultrasonic wind turbine sensor (WMT700)			●
	Pressure/humidity/temperature turbine sensor (PTU307)		●	●
	Visibility sensor (PWD20W)			●
	Offshore maritime & helideck monitoring		●	●
Digital services	WindCube fleet management and analytics (WindCube Insights)	●	●	●
	Wind data maps and time series (Historian)	●		●
	Energy forecast (Forecaster)			●
	Historical lightning maps and time series (GLD360, NLDN, Lightning Integrator)	●		
	Real-time lightning data, threats, and alerts (GLD360, NLDN)		●	●
	Lightning strike wind turbine damage potential (Strike Damage Potential)			●

## Wind energy solutions and applications

		Turbine development	Research and development
		<ul style="list-style-type: none"> <li>· New turbine prototyping</li> <li>· Equipment for turbine control</li> </ul>	<ul style="list-style-type: none"> <li>· Blocking effect</li> <li>· Wake losses studies</li> <li>· Wind farm wake effect</li> </ul>
Wind lidars	Vertical profiler (WindCube)	●	
	Long-range scanning (WindCube Scan)		●
	Nacelle-mounted (WindCube Nacelle)	●	
Sensors & systems	Ultrasonic wind turbine sensor (WMT700)	●	
	Pressure/humidity/temperature turbine sensor (PTU307)	●	
	Visibility sensor (PWD20W)	●	
Digital services	WindCube fleet management and analytics (WindCube Insights)	●	●

# Solar energy

## Comprehensive value, innovative applications

The sun has been our astronomical companion for 5 billion years, and solar energy is one of the key pathways to a healthier, greener, more innovative future. Vaisala's solar solutions are both advanced and practical, each building on the success of the one that preceded it. They combine industry-leading sensors with unmatched data services for full awareness and reliable, successful solar projects.

By unlocking new efficiencies and improving decision-making across the solar life cycle, Vaisala is making solar projects more competitive and profitable against competing energy sources.

Key benefits:

- Quantified and reduced uncertainty, protecting profitability
- Contribution to grid resilience and reliability
- Optimized performance and maintenance to prevent losses
- Minimized costs
- More informed, data-driven product choices
- Avoidance of unexpected damages and risks
- Efficient management and use of large amounts of data
- Historical perspective and big-picture visibility



## Solar energy solutions and applications

		Prospecting & development	Construction & commissioning	Operations & life management
		<ul style="list-style-type: none"> <li>· Site prospection</li> <li>· Solar resource assessment</li> <li>· PV plant design/technology selection</li> <li>· Repowering</li> </ul>	<ul style="list-style-type: none"> <li>· Construction planning</li> <li>· Worker safety</li> <li>· Power performance testing</li> </ul>	<ul style="list-style-type: none"> <li>· Power performance monitoring</li> <li>· Asset management and protection</li> <li>· Retrofit and performance increase</li> <li>· O&amp;M planning and worker safety</li> <li>· Minutes/hour/day ahead forecasting</li> <li>· Asset performance analysis/seasonal outlook</li> </ul>
Sensors & systems	All-in-one compact weather sensor (WXT536)			●
	IEC-compliant weather station for PV plant performance monitoring (AWS810 Solar Edition)	●	●	●
Xweather digital services	Historian	●		
	Forecaster			●
	Thunderstorm Manager		●	●
	Lightning Data	●	●	●

# Let's meet the greatest energy challenges of our time.

Reach out to see how Vaisala's expanded range of solar and wind energy solutions can help. We're here for you.



## 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.

