DNV GL: ZephIR 300 wind lidar is accepted for use in bankable / finance-grade wind speed and energy assessments with either no or limited on-site met mast comparisons under "benign" conditions.

DNV GL has been widely acknowledged as the technical authority on wind energy for nearly three decades. The company has applied this authority to the emerging field of remote sensing, specifically its use in the context of the development and financing of wind farm projects. Their analysis notes that cup anemometers have been the industry standard for measuring wind speed at wind farm sites and therefore they must be considered the norm against which any alternative measurement device must be judged.

DNV GL proposes a clear and auditable staging process for remote sensing devices which cover both lidars and sodars:

- Stage 1 & Milestone 1: Limited validation of a commercial device moving to some successful testing against conventional met masts over a range of heights (50m – 120m), achieving a similar level of accuracy in measurement. Results should be published in suitable technical papers.
- Stage 2 & Milestone 2: Increasing range of site measurements made under a range of meteorological conditions, moving to formal wind speed and energy assessments being provided based in part on data from the device, but only with site-specific validations against conventional anemometry.
- Stage 3: A device is considered proven for use in the assessment of wind farm sites. The data may be used quantitatively within formal wind speed and energy assessments with only limited or no site-specific validations against conventional anemometry.

DNV GL considers ZephIR 300 to be at Stage 3 under "benign" conditions - accepted for use in bankable / finance-grade wind speed and energy assessments with either no or limited on-site met mast comparisons. In October 2012 ZephIR was the first commercial wind lidar system to achieve accreditation at this level.

ZephIR 300 measures wind characteristics onshore and on fixed or floating platforms offshore from just 10 metres (33 feet) up to 200 metres (656 feet) above the installed position to inform wind regime and quality studies during the development and operation of wind farms onshore and offshore. ZephIR 300 is accurate, reliable and affordable, adding value to wind energy projects at every stage - from pre-planning, through development and on to operation. Every system is uniquely subjected to an industry-approved validation process, part of which occurs at the UK's Lidar and Sodar test site, ensuring repeatable finance-grade data.

ZephIR DM is a Dual Mode variation of the successful 300 system. Mounted inside the spinner or on top of the nacelle, ZephIR DM measures wind characteristics in front of or behind a turbine from just 10 metres (33 feet) out to 300 metres (984 feet), during the operation of wind farms onshore and offshore. ZephIR DM provides valuable advanced wind data for the optimised performance and alignment of wind turbines, for in-situ power performance measurements, to reduce wind loading on turbine components and for specific troubleshooting applications.

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About ZephIR Ltd.

In 2003 we released the first commercial wind lidar, ZephIR®, exploiting decades of research at UK government Research & Development establishment QinetiQ. Designed specifically for the wind industry ZephIR has paved the way for many of the remote sensing devices seen in the market today. Our original lidar technology continues to innovate with world firsts such as taking measurements from a wind turbine spinner and being the first to deploy an offshore wind lidar, both fixed and floating. ZephIR has also now amassed more than 4 million hours of operation across 650+ deployments globally spanning a decade of commercial experience. For wind measurements onshore, offshore and in turbine-mounted applications, ZephIR provides accurate, reliable finance-grade wind data.

ZephIR Ltd. is a wholly owned subsidiary of Fred. Olsen Ltd. - established in the UK in 1963 with business interests primarily focussed on renewable energy, including ZephIR. Visit www.zephirlidar.com for more information.

About DNV GL

DNV GL provides classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. The company also provides certification services to customers across a wide range of industries. Operating in more than 100 countries, DNV GL's 16,000 professionals are dedicated to helping their customers make the world safer, smarter and greener. Visit www.dnvgl.com for more information.

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