The iSpin equipment is an enabler for load calculations and assessments as well as the optimization of the turbines in terms of wake effects. (Source: Romo)

INNOVATION

iSpin technology to monitor Vattenfall wind center

Since commissioning the European Offshore Wind Deployment Centre (EOWDC) earlier this year, the Swedish energy group Vattenfall has been measuring important wind parameters with Romo iSpin technology to monitor the performance of each of the 11 enhanced MHI Vestas V164 8MW class wind turbines. The iSpin equipment was installed as part of the turbine supply contract.

"With iSpin technology, Vattenfall will be able to detect deviations in the power curve, allowing them to remedy the problem and minimize energy losses," said Brian Sørensen, CEO of Romo Wind.

With its advanced wind measurement capabilities, including turbulence intensity, yaw misalignment, and inflow angle measurements, in addition to wind speed and direction, the iSpin equipment is an enabler for

load calculations and assessments as well as the optimization of the turbines in terms of wake effects.

"The ability to capture value-adding data plays a significant role in the operational phase of a windfarm," said Kevin Jones, Head of Aberdeen Bay, Vattenfall. "The iSpin technology contributes to Vattenfall's ability to actively control operational risks."

Vattenfall has been developing and operating wind power in the U.K. for the past 10 years and is taking the lead in offshore wind innovation. It recently started operations at the EOWDC, in Aberdeen Bay. The cutting-edge wind farm will be a test bed for offshore wind innovation. The innovation deployed at the EOWDC will help increase productivity and reduce the cost of energy produced at the 11-turbine scheme.

MORE INFO corporate.vattenfall.co.uk/projects/

INNOVATION

WindGuard wind tunnel celebrates 10 years

This year, Deutsche WindGuard's large scale aero-acoustic wind tunnel in Bremerhaven celebrates its 10th anniversary.

"When the wind industry became established in the early 2000s, it became apparent that noise emission was an issue with rotor blades at the time," said Dr.-Ing. Knud Rehfeldt, managing director of Deutsche WindGuard Engineering GmbH. "The existing wind tunnels, with their high background noises, could not provide the testing conditions for the new industry requirements. So, when some of our customers approached us about a wind tunnel for rotor-blade aerodynamics, we thought that was a great idea and immediately got to work"

In 2006, WindGuard's Knud Rehfeldt and his team set out to develop a wind tunnel specifically for the wind industry. It would have to have an excellent flow quality, a low background

Deutsche WindGuard Engineering has operated WindGuard's aero-acoustic large scale wind tunnel in Bremerhaven since 2008. (Courtesy: Deutsche WindGuard Engineering)

noise, achieve high wind speeds and Reynolds numbers. To reduce the sound level of the wind tunnel itself, the tunnel is built with acoustically-decoupled sections, and incorporates about 2,000 square meters of special noise absorbing elements. The tunnel was built in 2007 and inaugurated in 2008.

Today, after 10 years of operation, more than 100 different airfoils tested, and several thousand measurements, the wind tunnel is running and constantly adding new capabilities. Development has never stopped.

"Today, the maximum flow speed of the wind tunnel reaches 360 kmh with Reynolds numbers of 6 million, and the background noise level has been reduced by more than 10 dB," said Nicholas Balaresque, head of acoustic wind tunnel testing at Deutsche WindGuard. "The collaboration between colleagues from many WindGuard departments has been crucial for the successful outcome of many campaigns. Especially the synergy that has developed between all seven WindGuard wind tunnels has helped improve the measurement quality and extend the range of offered wind tunnel related services."

MORE INFO www.windguard.com

INNOVATION

DNV GL certifies Ingeteam's 2MW DFIG converter

Ingeteam, the world-leading supplier of electrical conversion equipment, recently announced it received DNV GL's certification for its Ingecon®Wind stator-equipped 2MW DFIG converter.

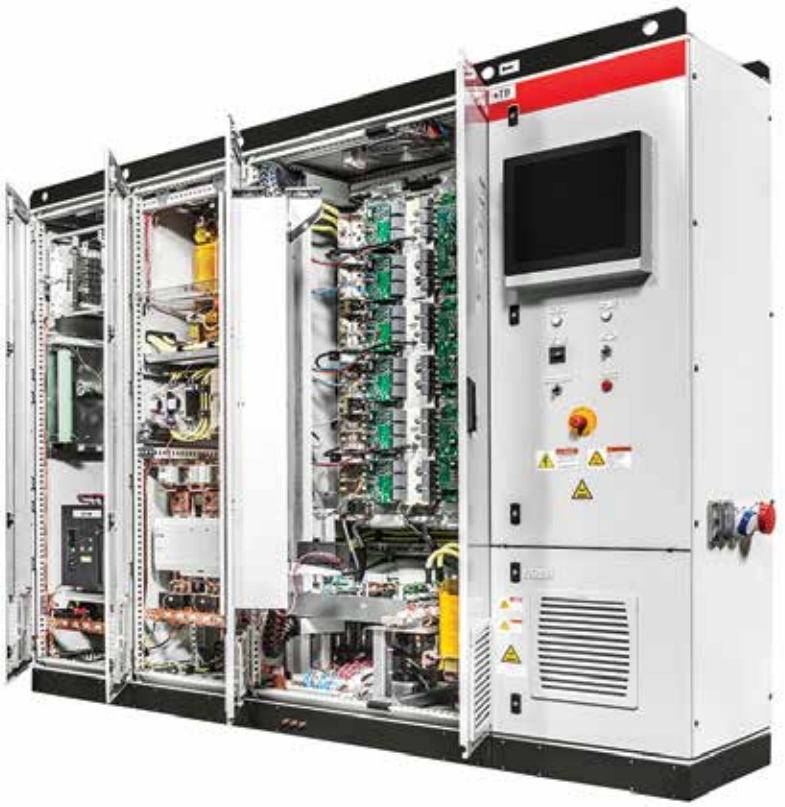
With this latest achievement, Ingeteam completes the range of its products covered under DNV GL certification, such as the medium voltage full power converters and the statorless DFIG converters; and demonstrates its ability to consistently meet DNV GL's quality and safety requirements across multiple drive-train topologies.

Ingeteam's low voltage DFIG power converters have been developed with a modular FRT solution to optimize cost-effectiveness and fulfil the strictest international grid codes. It is a mature technology used by many of the main turbine manufacturers, offering key advantages with regards to costs and sizes savings.

The DNV GL Component Certificate confirms that Ingeteam's converter is designed, documented and manufactured in accordance to design assumptions, specific standards and technical requirements, globally. It also makes the process of new turbine development easier, speeding up the integration of components to wind turbine platforms.

"To this day, DFIG converters remain the most proven, efficient and cost competitive drive train topology," said Ion Etxarri Sangüesa, R&D Quality Team Leader of Ingeteam Wind Energy. "Our DFIG converter series offer cost-optimized products for each market and application. Those converters present a very grid-friendly behavior, including FRT, SCR, and SSR, which explains why they are used all over the world, and, in particular, why they do very well in emerging markets such as India or Brazil. Our 2MW DFIG converters can be modulated to bring customized solutions that will effectively minimize wind turbine LCOE."

"We are very pleased to continue our partnership with Ingeteam and support the company in their efforts to demonstrate the quality standards of their products," said Kim Mørk, executive vice president of Renewables Certification at DNV GL. "This new certification is another step forward in the excellent working relationship



Ingeteam's low voltage DFIG power converters have been developed with a modular FRT solution to optimize cost-effectiveness and fulfil the strictest international grid codes. (Courtesy: Ingeteam)

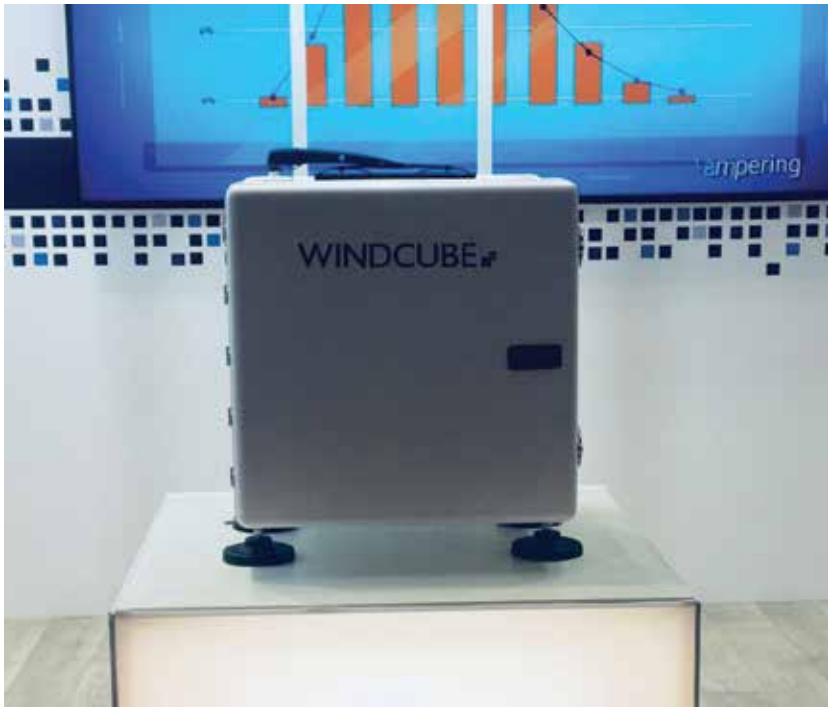
we have developed with Ingeteam over the years. The certificate emphasizes the quality requirements of Ingeteam in safety and reliability of their products."

MORE INFO www.ingeteam.com

INNOVATION

Vaisala acquires Lidar manufacturer Leosphere

Vaisala, a global leader in environmental and industrial measurement, recently announced the acquisition of Leosphere SAS, a world leader in ground-based and nacelle-mounted Lidar equipment for the wind-energy industry. As project developers and operators worldwide turn to remote sensing to capture wind data at today's increasing hub-heights, the acquisition



The Windcube Vertical Profiler is the wind industry's leading Lidar system. (Courtesy: Vaisala)

will see Leosphere's Windcube and Wind Iris Lidars join Vaisala's Triton Wind Profiler as part of the market's most comprehensive range of measurement equipment.

"The advantages and opportunities remote sensing units bring throughout the lifecycle of a modern wind farm are now well-understood. It is common practice for wind-energy firms to deploy Lidar and Sodar to inform crucial decisions relating to site prospecting, resource assessment, and turbine performance testing," said Jarkko Sairanen, executive vice president of Weather and Environment for Vaisala. "Adoption of these more versatile measurement technologies to augment conventional met towers is a key factor in enabling the wind industry to increase the scale of project development, not only through larger, more advanced turbines, but also in new, remote markets worldwide."

Vaisala's customers can now benefit from a comprehensive product range that encompasses the Triton Wind Profiler — a robust and cost-effective Sodar unit that has been deployed on nearly 5,000 measurement campaigns worldwide — and the Windcube Vertical Profiler, the wind industry's leading Lidar system. The product range also includes the nacelle-mounted Wind Iris Power Optimization and Turbine Control units, specifically designed to help turbine owners increase efficiency in long-term wind energy production.

"The respective qualities of Sodar and Lidar are often weighed up against each other, but the fact is that both technologies have their place in a cost-effective, bankable wind measurement campaign," Sairanen said. "We have often spoken of the remote sensing 'revolution' that is underway in the wind sector — and with this complementary product offering, we're giving the industry the tools it needs to carry this out."

The Windcube Vertical Profiler, Scanning Windcube, Wind Iris Power Optimization, and Wind Iris Turbine Control units, along with the Triton Wind Profiler, are immediately available from Vaisala. Leosphere customers will see no change to the service they currently receive.

MORE INFO www.vaisala.com/leosphere

MAINTENANCE

AMSOIL to be main supplier for ZF Wind Power

Following years of committed partnership, field testing, and data-backed results with worldwide customers, AMSOIL has been selected by ZF Wind Power for gearbox lubrication during end-of-line testing at all of its manufacturing locations.

Those locations include Lommel, Belgium; Witten, Germany; Tianjin, China; Coimbatore, India; and its service facility in Vernon Hills, U.S.

The agreement solidifies AMSOIL as the global leader in wind gearbox oil reliability and performance. The company's global presence and unparalleled customer service have not gone unnoticed by original equipment manufacturers (OEMs).

"We are proud to partner with ZF Wind Power, a company known for its strong technological leadership, strategic partnerships, and strong focus on R&D," said Dave Meyer, AMSOIL VP, Wind & Industrial. "That reputation makes the decision to partner with AMSOIL a significant validation of our products and service. The agreement is consistent with ZF's vision to provide the highest quality products on the market."

AMSOIL PTN 320 Synthetic Gear Oil offers advanced gear protection in the crucial run-in period and is engineered to last. After more than nine years in use, it still passes rigorous OEM test requirements designed for new oil, proving its durability. The premium industrial lubricant's superior performance and long drain interval saves money and protects the environment.

ZF Wind Power is a globally established designer, manufacturer, and supplier of advanced gearbox solutions for wind turbines, currently operating four state-of-the-art manufacturing plants with an annual output capacity of approximately 18,000 MW. In addition to its manufacturing presence in Europe, India, China, and the U.S., ZF

AMSOIL PTN 320 Synthetic Gear Oil offers advanced gear protection in the crucial run-in period. (Courtesy: ZF Wind Power)