WindEnergy Hamburg: Focus on the digital transformation
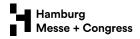
From more efficient production processes to data analytics and simulations in project development, and through to Artificial Intelligence for operation and repair management: On the Hamburg Messe exhibition campus, WindEnergy Hamburg, the global flagship fair, will show from 24 to 27 September 2024 how digitalisation is taking the wind industry to the next level. What is more, at the new AI CENTER companies will present numerous Artificial Intelligence applications.

Hamburg, 30-07-2024 – The digital transformation is picking up speed in the wind industry. From monitoring and controlling wind farms to forecasting energy production and maintenance requirements, companies increasingly rely on smart sensors, big data analytics and Artificial Intelligence to operate their wind power systems more efficiently while minimising downtime. Custom-tailored software solutions increase efficiency and help operators reduce costs. "Examples such as rotor blade wear monitoring or predictive maintenance of turbines demonstrate the benefits of digitalisation," says **Claus Ulrich Selbach,** Business Unit Director Maritime and Technology Fairs at Hamburg Messe und Congress. Service and maintenance account for one third of a turbine manufacturer's sales revenues, he adds. "Being able to make sound predictions about the condition or wear of turbines and other components increases turbine availability, helping to deploy staff more efficiently in times of a shortage of skilled labour." At the leading international wind industry expo in Hamburg from 24 to 27 September 2024, market-leading exhibitors will showcase their innovations supporting the digital transformation.

Virtual representation of reality

Digital twins play a key role in the work of wind turbine manufacturers. Whether aerodynamics, acoustics, or energy management, the digital representation of a wind turbine lets engineers simulate all associated processes in a data model. "What we want to achieve with the digital twin is to create an exact digital model of the entire wind farm that allows us to run entire scenarios," says **Greg Oxley**, Lead Data Scientist at Siemens Gamesa. Simulation helps the company optimise systems proactively, reducing the costs of live testing substantially. Performance data collected during live operations is fed back into the development process to support the continuous improvement of wind turbines.

The benefits of this approach are already evident, reports **Michael Sandholm Jepsen**, Technical Authority Support Structure Integrity at Vattenfall: "Using our digital twins, we have delivered proof that the wear on turbines is lower than what the original designs had suggested. We have to use this information proactively because it will enable us to extend the lifespan of our existing wind farms in a safe and cost-optimised manner while optimising designs for future wind farms." Apart from Vattenfall and Siemens Gamesa, the classification society DNV and the wind turbine manufacturer Vestas will also exhibit digital twin solutions at WindEnergy Hamburg in September.

AI CENTER: Artificial Intelligence as a game changer

This year's WindEnergy Hamburg will dedicate even more space to Artificial Intelligence (AI) than in past years: At the AI CENTER, organised in cooperation with the AI.HAMBURG team, industry visitors will learn more about potential applications of AI-based solutions. "The ability to capture and manage data has become a major success factor for efforts to improve the operation of wind turbines and wind farms and the management of the energy network as a whole," says **Ragnar Kruse**, Co-Founder and CEO of AI.HAMBURG. "The digital transformation, in the wind energy industry as elsewhere, is inconceivable without AI today."

The British software house Kavaken is one of the companies that embrace this technology. "Through our innovative platform we are changing the way renewable energy systems are operated, financed and insured, enabling effortless and efficient asset management," says Co-Founder and CEO **Tokyay Bora**. The wind energy experts at MesH Engineering deploy innovative applications to help companies develop ever larger wind turbines and components.
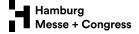
Interested visitors may study these and other promising concepts at the AI CENTER at WindEnergy Hamburg. There is no question: "The use of Artificial Intelligence and automation in the wind industry is revolutionising energy generation," states the German wind energy organisation **Bundesverband Windenergie (BWE)**.

Storage Tour: Concentrated power

The production of wind energy is increasing steadily, whether through newly erected units or repowering. Both not only require smart feed-in management but also innovative and powerful energy storage technologies, which are the key to the future energy supply. Exhibitors addressing this field of expertise can be found along the dedicated Storage Tour at WindEnergy Hamburg. "This highlights the importance of this topic and makes it easier for visitors to locate relevant suppliers," says **Claus Ulrich Selbach**. Exhibitors will include Avacon, GP Joule, OAT and many others.

About WindEnergy Hamburg

Every two years one of the most fascinating industries meets for the leading global networking event for wind energy: At WindEnergy Hamburg, which takes place right in the heart of the vibrant northern German port city, around 1,500 companies from 40 countries present their innovations and solutions in ten exhibition halls to up to 40,000 visitors from 100 different nations. Covering 75,000 m² across the exhibition campus, equipment manufacturers and suppliers representing all stages of the onshore and offshore wind energy value chain provide a comprehensive overview of the market. The trade fair is accompanied by conference sessions where top-ranking experts address the industry's current key topics. The WindEnergy Hamburg team develop this programme jointly with their partners, including the Global Wind Energy Council (GWEC), the European organisation WindEurope, the national industry associations VDMA and BWE, leading industry media, and

companies from the wind energy sector. From 24 until 27 September 2024, all conference sessions will take place free of charge on five open stages located inside the exhibition halls.

New: Networking platform access and HVV public transport ticked included
WindEnergy Hamburg participants will benefit from two new features this year: each trade fair admission ticket will double as a ticket for travelling to and from the fair on the Hamburg public transport system (HVV). Furthermore, the free Networking Platform app allows visitors to identify new business contacts, network before, during and after the fair, and create their own fair schedule including appointments and shoulder programme events. To download, go to WindEnergy Hamburg Networking Platform – WindEnergy Hamburg

For more information as well as photos and press releases for downloading, please visit the fair Website, LinkedIn or Instagram

Photocredit: Stephan Wallocha / HMC
           Michael Zapf/ HMC

Press contact:
Jusrah Doosry, ph.: +49(0)40-3569-2447
E-mail: jusrah.doosry@hamburg-messe.de

Annika Meyer, telephone: +49 (0)40-3569-2445
E-mail: annika.meyer@hamburg-messe.de