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MOVENTAS EXCEEDS HIGH TORQUE DENSITY WITH 3-MW GEARBOX



The Exceed is a 3-MW, up-product platform with a high-quality weight and nominal torque ratio. The Exceed provides 20-percent more torque density with 10-percent less size and consists of 100-percent proven Moventas technology. Testing and verification showed that torque density improvement was even more significant than expected, exceeding 140 Nm/kg.

“We took measured gearbox values of the technology we’ve been using for a decade and recalculated them with new design methods,” said Moventas’ CTO Jyrki Virtanen. “As a result, one gets more torque out of a smaller, more lightweight gearbox. This positively affects the levelized cost of wind energy.”

In addition to the superior torque density, the Exceed’s other major improvements contributing to turbine competitiveness include lower weight, smaller size, and best-in-class noise and vibration behavior.

Compared to a conventional Moventas 3-MW gearbox, the Exceed is nearly 4.5 tons lighter, weighing less than 20 tons. Despite the lighter weight, no quality compromises have been made.

The Exceed’s overall noise levels are quieter on both partial and nominal powers. Its maximum vibration level is half the level of a conventional 3-MW gearbox. In addition to the increased performance, tests also showed improved reliability.

Supervised by a classification body, Moventas finished the successful prototype verification process two weeks ago. Serial deliveries of the Exceed will begin in Q1/2016 for two OEM customers from Moventas’ highly modern MMW wind gearbox factory in Finland. ↗

— Source: Moventas

SENVION PRESENTS ITS HIGHEST YIELD ONSHORE WIND TURBINE

The Senvion 3.4M140 is equipped with a sound-optimized blade profile and a new pitch control system to reduce turbine load. The Senvion 3.4M140 will be available in 2018 with hub heights of 110 and 130 meters. The longer 68-meter blades at these tower heights alone permit high yields at low-wind locations such as forested and mountainous areas.

“Wind energy is competitive in the most diverse of places,” said Senvion CEO Andreas Nauen. “By offering wind turbines with longer rotor blades that can be operated even more profitably and cost-efficiently at great heights, Senvion is proving that even low-wind locations inland can be attractive.”

Compared with the 3.0M122, the 3.4M140 generates up to 20-percent greater yields, depending on the location. A load-reducing pitch control system ensures a cost-efficient design. The service life is also extended to 25 years. This further development is making a major contribution to reducing the leveled cost of energy and to the competitiveness of wind energy.

The mass-produced optimized blade profile with integrated serrations also reduces the sound power level of wind turbines.

“Wind energy is part of our future,” Nauen said. “Further developments such as serrations are a big step forwards and even allow larger turbines to adapt to our requirements. Despite its size, the Senvion 3.4M140 will be one of the quietest turbines on the market and we will continue to optimize this technology.”

Senvion will install the prototype in 2017.

The Senvion 3.4M140 is equipped with the Next Electrical System (NES), which Senvion introduced for its 3.XM series at the Hannover Messe 2015. The gearbox-based concept, which features an asynchronous generator and a fully rated converter, permits stable grid feed-in and already meets the grid requirements in the various markets for 2017 ahead of time. ↘

— Source: Senvion



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ENERGY DEPARTMENT AWARDS \$1.8 MILLION TO DEVELOP WIND TURBINE BLADES



The Energy Department recently announced the selection of two organizations to develop larger wind turbine blades that can take advantage of better wind resources and can lower costs.

Technological innovations such as taller wind turbine towers and larger rotors can more efficiently capture the stronger and more consistent wind resources typically found at greater heights above ground level. This past May, the Energy Department released a new report highlighting how the United States can unlock the vast potential for wind energy deployment in all 50 states, made possible through continued innovations in next-generation components like these.

In addition to accessing better wind resources, another focus of this research involves lowering blade weight and improving design to help the industry reduce production costs. This will also help lower transportation costs for installing these very large components.

The two research and development projects will address the challenges of manufacturing, transporting, assembling, and installing rotor blades longer than 60 meters using design concepts scalable to greater lengths.

Wetzel Engineering, Inc. of Pflugerville, Texas, in partnership with the Energy Department's National Renewable Energy Laboratory (NREL), Northern Power Systems, TPI Composites, and NextEra, will develop a field-assembled blade called "SparBlade™" using a light-weight bonded composite space frame. Between 62–74 meters, this new technology is intended for operation on multi-megawatt wind turbines and tall towers. The new technology is expected to create a higher performance, lower weight, and lower cost wind turbine blade with significantly reduced transportation costs.

GE, in partnership with NREL and TPI Composites, will design a jointed blade for onsite assembly to reduce transportation logistical

constraints while meeting structural requirements for next-generation turbines. GE will gather input and engage the industry to facilitate technology transfer as jointed blades are introduced in the United States.

This effort is part of the Department's Clean Energy Manufacturing Initiative, which aims to increase American competitiveness in the production of clean energy products and boost U.S. manufacturing competitiveness across the board by increasing energy productivity.

The Energy Department's Office of Energy Efficiency and Renewable Energy accelerates development and deployment of energy efficiency and renewable energy technologies and market-based solutions that strengthen U.S. energy security, environmental quality, and economic vitality. Go to www.energy.gov to learn more about the Wind Program's research and development efforts to advance wind turbine and component manufacturing. ↵

— Source: DOE