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Siemens launches new gearless wind turbine for low to moderate wind speeds

Siemens Energy today launched a new direct drive gearless wind turbine for low to moderate wind speeds at the EWEA 2011 wind power exhibition and conference in Brussels. The core feature of the new SWT-2.3-113 wind turbine is an innovative drive concept with a compact permanent magnet generator. This type of generator is characterized by its simple, robust design, requiring no excitation power, slip rings or excitation control systems. This results in high efficiency even at low loads. With a capacity of 2.3 megawatts (MW) and a rotor diameter of 113 meters the new wind turbine is designed to maximize power production at sites with low to moderate wind speeds. The SWT-2.3-113 is fitted with the new Siemens B55 Quantum Blades. This new blade design boosts efficiency and optimizes performance. A prototype of the new machine was installed in the Netherlands in March.



The SWT-2.3-113 is the second gearless wind turbine launched by Siemens. Like the SWT-3.0-101, the 3-MW direct drive wind turbine launched by Siemens in April 2010, the new SWT-2.3-113 features only half of the parts required for a conventional geared wind turbine and a significantly smaller number of moving parts. The first prototypes of our SWT-3.0-101 have been running for more than a year and fulfilling all expectations in terms of reliability and performance, said Henrik Stiesdal, CTO of the Siemens Wind Power Business Unit. The design of the new SWT-2.3-113 is based on the same platform as the revolutionizing SWT-3.0-101 wind turbine we launched last year. The new SWT-2.3-113 benefits from experiences accumulated to date, added Stiesdal. With its proven lightweight design it is a secure and profitable investment. Because gearless technology is low-maintenance, it maximizes our customers' returns.

Together with the SWT-2.3-113 Siemens is introducing the Quantum Blade, a new generation of rotor blades. The new blade is lighter than previous models but retains the superior strength of earlier generations. The new B55 Quantum Blade used for the new wind turbine is 55 meters long and features a redesigned tip and root section. The root section uses Siemens' flatback profiles to minimize root leakage and provide greater lift. The blade tip has also been redesigned to minimize loads and reduce noise levels. With a noise level of only 105 decibels (dB) the SWT-2.3-113 is one of the quietest wind

turbines on the market.

To date, Siemens has installed and commissioned a total of five gearless SWT-3.0-101 wind turbines in Denmark and Norway. Further projects with Siemens direct drive wind turbines are planned in the U.S., Denmark and Germany. In addition to these two new wind turbines with ratings of 3 MW and 2.3 MW, further turbines are already at the planning stage. This year we will launch our 6-MW direct drive wind turbine, which will be particularly suitable for large offshore wind power plants, Stiesdal stated.

Wind power is part of Siemens' Environmental Portfolio. In fiscal 2010, revenue from the Portfolio totaled about EUR28 billion, making Siemens the world's largest supplier of ecofriendly technologies. In the same period, our products and solutions enabled customers to reduce their carbon dioxide (CO₂) emissions by 270 million tons, an amount equal to the total annual CO₂ emissions of the megacities Hong Kong, London, New York, Tokyo, Delhi and Singapore.

The **Siemens Energy Sector** is the world's leading supplier of a complete spectrum of products, services and solutions for the generation, transmission and distribution of power and for the extraction, conversion and transport of oil and gas. In fiscal 2010 (ended September 30), the Energy Sector had revenues of approximately EUR25.5 billion and received new orders totaling more than EUR30.1 billion and posted a profit of more than EUR3.3 billion. On September 30, 2010, the Energy Sector had a work force of more than 88,000. Further information is available at: <http://www.siemens.com/energy>