

Energy Sector Renewable Energy Division

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New Siemens Direct Drive wind turbine ready for sale

SWT-3.0-101: increased performance with 50 percent fewer parts

Siemens Energy today launched its new SWT-3.0-101 Direct Drive wind turbine for sale at the European Wind Energy Conference and Exhibition in Warsaw. The new SWT-3.0.101 with a rated power of 3 megawatts (MW) offers innovation through a completely new Direct Drive concept introducing a permanent magnet generator. With half the parts of a conventional geared wind turbine, and much less than half the number of moving parts, the new wind turbine will require less maintenance and increase profitability for customers. The new Direct Drive wind turbine features a rotor diameter of 101 meters and is now available for sale for onshore and offshore projects around the world.

“Our new SWT-3.0-101 will offer 25 percent more power than our present 2,3-MW-machine, but with a lower weight and only half the parts”, said Henrik Stiesdal, CTO of the Siemens Wind Power Business Unit. “Our main target for the new machine was to reduce complexity in order to increase reliability and profitability. We are confident that our new Direct Drive wind turbine is a reliable investment in the future of power generation.”

The new SWT-3.0-101 features a new, gearless drive train design with a compact, synchronous generator, excited by permanent magnets. The generator of the first prototype machine, which was installed in Denmark in 2009, was produced by the Large Drives Business Unit within the Siemens Industry Sector. The main advantage of permanent magnet generators is their simple and robust design that requires no excitation power, slip rings or excitation control systems. This leads to high efficiency even at low loads.

A major advantage of the new machine is its compact design. With a length of 6.8 meters and a diameter of only 4.2 meters, the nacelle can be transported using standard vehicles commonly available in most major markets. “The nacelle of SWT-3.0-101 weighs only 73 tons, which is less

than the nacelle of our standard 2.3-MW wind turbine”, added Henrik Stiesdal. “But despite the compact design, we have actually given our service technicians more space to operate – simply because we radically reduced the number of parts”.

Of the five key components in a wind turbine – the blade, rotor hub, nacelle, tower and the controller – all but the nacelle are adapted from Siemens existing portfolio. By utilizing proven components, Siemens has endeavored to eliminate the risks traditionally associated with the introduction of such an innovative product.

“Since it was installed last year, the performance of our first prototype has been excellent”, said Henrik Stiesdal. As a next step, the zero-series with up to 10 SWT-3.0-101 wind turbines will be installed in various parts of the world during 2010. Commercial serial production is expected to commence in 2011. “Like with our previous machines, we will run a controlled ramp-up program with the SWT-3.0-101”, adds Stiesdal. “This careful introduction of new products reduces risks for our customers and boosts the reliability and profitability of our technology.”

Wind turbines are part of Siemens' Environmental Portfolio. In fiscal 2009, revenue from the Portfolio totaled about EUR23 billion, making Siemens the world's largest supplier of ecofriendly technologies. In the same period, the company's products and solutions enabled customers to reduce their CO₂ emissions by 210 million tons. This amount equals the combined annual CO₂ emissions of New York, Tokyo, London and Berlin.

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 2009 (ended September 30), the Energy Sector had revenues of approximately EUR25.8 billion and received new orders totaling approximately EUR30 billion and posted a profit of EUR3.3 billion. On September 30, 2009, the Energy Sector had a work force of more than 85,100. Further information is available at: www.siemens.com/energy