

News release from Vestas Wind Systems A/S

1 May 2014

Vestas launches new upgrades to increase output of installed turbines

Vestas PowerPlus™ features a range of new technology upgrades to optimise the performance of existing wind power plants, enhancing the power production of our customers' wind turbines by up to 5%.*

The Vestas PowerPlus™ upgrades are designed to optimise the performance and increase the power output on existing wind power plants by up to 5%*, directly benefiting our customers' bottom line.

"The Vestas PowerPlus™ technology solutions are part of Vestas' overall strategy of growing our service business and to respond to a strong customer demand to increase power output while maintaining high reliability," Chief Technology Officer Anders Vedel explains, and continues:

"So far Vestas PowerPlus™ has been very well received by customers, particularly in North America where we expect the fastest impact on sales."

Vestas has already sold and implemented upgrades on more than 500 V82-1.65MW, V90-1.8MW, and V100-1.8MW wind turbines in North America and across the world.

Three technology upgrades

Vestas PowerPlus™ consists of three product offerings:

- Power Uprate (V82-1.65 MW, V90-1.8 MW and V100-1.8 MW);
- Extended Cut Out (V90-3.0 MW, V100-1.8/2.0 MW); and,
- Aerodynamic Upgrades (V82-1.65 MW).

Power Uprate is a modification to the turbine control parameters that allows the wind turbines to increase their maximum power output from 1.8MW up to 2.0MW (V82: 1.65MW up to 1.8MW). The result is an increased Annual Energy Production (AEP) (generally 1.0-4.0%).

Extended Cut Out is a modification of the turbine control parameters that allows turbines to capture more wind at higher speeds by extending the maximum wind speed limit from 25 m/s up to 30 m/s. The result is an increase in AEP (generally 0.5-2.0%).

The **Aerodynamic Upgrades** are Vortex Generators, which are a cost-effective solution using small fins that optimise air flow over the blades to improve the aerodynamics and increase AEP of a wind power plant (generally up to 0.8%).

*Annual Energy Production increase depends on turbine type and site conditions.

Vestas will officially launch Vestas PowerPlus™ at our stand during the AWEA Windpower 2014 trade show in Las Vegas on 6 May between 5:00pm and 7:00pm. Chris Brown, President of Vestas' sales and service division in the United States and Canada, will present the new offering.

For more information, please contact:

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About Vestas

Every single day, Vestas wind turbines deliver clean energy that supports the global fight against climate change. Wind power from Vestas' more than 51,000 wind turbines currently reduces carbon emissions by over 60 million tons of CO₂ every year, while at the same time building energy security and independence.

Vestas has delivered wind energy in 73 countries, providing jobs for around 16,000 passionate people at our service and project sites, research facilities, factories and offices all over the world. With 52 per cent more megawatts installed than our closest competitor and more than 60 GW of cumulative installed capacity worldwide, Vestas is the world leader in wind energy.

We invite you to learn more about Vestas by visiting our website at www.vestas.com and following us on our social media channels:

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