

## Press Release

Bremerhaven / Voerde, September 2016

### **Adwen and Winergy present the world's biggest wind turbine gearbox**

**In close cooperation Adwen and Winergy developed the gearbox for Adwen's AD 8-180 offshore wind turbine. With an input torque of close to 10,000 kilonewton-meters (kNm) and a weight of 86 tonnes it is the largest wind turbine gearbox ever built in the world.**

Winergy's gearbox was designed exclusively for the AD 8-180 wind turbine. It is part of a medium-speed drive train concept that will considerably help reduce the levelized cost of energy (LCOE) on Adwen's new offshore giant. At 180 meters the AD 8-180 boasts the world's largest-diameter rotor. In combination with a nominal electrical power of 8 megawatts the gearbox attains an input torque of close to 10,000 kNm – a value never before equaled. This 70 percent increase in torque capacity was achieved with only a 20 percent weight increase compared to other gearboxes used in offshore wind turbines larger than 6 MW.

The two-stage-planetary gearbox is directly connected to a medium-speed generator via a flange connection. Thanks to the choice of a medium-speed gearbox concept and leveraging on proven technologies well known by both companies, Adwen and Winergy can successfully maximize the efficiency of the drive train, while cutting the cost of the components. In tests the gearbox attains an efficiency of well over 98 percent. Further, by reducing the built-in components its reliability increases.

Winergy has manufactured 4 gearboxes for Adwen with the goal of having them fully validated in three phases. The first one takes place at Winergy on modified test bench which is being used for the back-to-back testing of two identical gearboxes with up to 125% over loading. Adwen's validation process, the most stringent ever taken on a gearbox and drivetrain this size, requires these tests to guarantee maximum reliability of such a critical component.

**Siemens AG**  
Business Segment Management: Aarnout Kant

Am Industriepark 2  
46562 Voerde  
Germany

Tel.: +49 (2871) 92 4  
Fax: +49 (2871) 92 2487  
[www.winergy-group.com](http://www.winergy-group.com)  
[info@winergy-group.com](mailto:info@winergy-group.com)

The second phase takes place at Fraunhofer IWES Test Center's Dynamic Nacelle Testing Laboratory where the gearbox undergoes exhaustive tests in combination of full drivetrain and nacelle. The final phase is field tests with the installation of the AD 8-180 prototype in Bremerhaven (Germany).

"We continue pushing the limits of the industry with our AD 8-180, this time with the largest gearbox ever built. This key component has performed extremely well during the exhaustive validation process which makes us confident the first prototype of the turbine will meet and even exceed our expectations in terms of performance and reliability when it is installed. In addition, as the rest of the main components, it has been designed with scalability in mind enabling the future evolution of the platform", explained Luis Alvarez, CEO of Adwen.

Winergy CEO Aarnout Kant adds, "Particularly in the offshore sector reliability is the essential thing. With this medium-speed gearbox concept we are demonstrating our technological expertise and innovative strength. The integrated drive system is not only very compact and efficient, it is also extremely reliable. It makes us proud to be Adwen's partner on this showcase project."

### **The world's biggest wind-turbine gearbox at WindEnergy Hamburg**

The exceptional dimensions of the gearbox designed for the AD 8-180 wind turbine will be showcased at the leading fair WindEnergy in Hamburg, Germany, from September 27 to 30. The 1:1-scale exhibit will be the highlight of the Winergy booth. Visitors will be able to view the gearbox's interior equipped with journal bearings.

### **About Adwen**

Adwen is a 50-50 joint-venture of AREVA and Gamesa dedicated to offshore wind. Adwen is responsible for the design, manufacturing, installation, commissioning and services of offshore wind turbines. Combining both AREVA and Gamesa wind expertise and extensive track-record, Adwen is ideally positioned to become a leading player in the offshore wind segment with the objective of garnering a market share of close to 20% in Europe by 2020.

Adwen has corporate offices in France, Spain, the UK and Germany.

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### **About Winergy**

Winergy is headquartered in Voerde, Germany, and is the leading drive train component manufacturer for wind turbines. It has supplied more than 125,000 MW gearboxes worldwide. With more than 35 years of experience, Winergy offers gearboxes, HybridDrives, couplings, and services to wind turbine manufacturers and wind park owners. The product portfolio covers power ratings between 750 kW and 10 MW. This is complemented by a high quality professional service portfolio. Production and service sites are located in Europe, China, India, and the U.S., while the base of service locations expands continuously on a global level.

### **Contact Public Relations:**

#### **Adwen**

Fernando Reartes Puccio

Phone: +33 (0) 1 34 96 12 34

eMail: fernando.reartes@adwenoffshore.com

#### **Winergy**

Tobias van der Linde

Phone: +49 (0) 2871 92 24 53

eMail: tobias.vanderlinde@siemens.de