



MEDIA RELEASE

BELWIND PROVIDES TESTING SITE FOR ALSTOM'S LATEST HALIADE WIND TURBINE TECHNOLOGY

A part of the Belwind phase 2 wind power plant in the North Sea will provide the laboratory and testing waters for Alstom to assess their latest Haliade 150-6MW turbines in stringent, real-life offshore wind and sea conditions.

Brussels, Belgium, February 12th, **2013** – Belwind and Alstom are proud to announce their agreement to test Alstom's newly launched Haliade 150-6MW offshore wind turbine in the harsh conditions of the Belwind phase 2 wind power plant in the North Sea of the coast of Zeebrugge in Belgium.

The Haliade has specially been optimized for the wind conditions in the North Sea where most of the European market is currently situated, and is targeted for future Belgian, French, UK and German projects. As most offshore wind turbines installed today are based on modified onshore turbine technology, Alstom believes that only dedicated technology will solve the severe difficulties posed by the marine environment; in particular, the cost of the turbine and its foundation, and the reliability and maintainability of the equipment.

To meet the severe challenges posed by the marine environment, Alstom has developed a 6MW wind turbine which is simple, robust and efficient, to improve the competitiveness of offshore wind power. Simple, this wind turbine will function without a gear box (by direct drive) and is fitted with a permanent magnet alternator, to reduce operating and maintenance costs. Robust, the Haliade 150 is fitted with Alstom PURE TORQUE technology which protects the alternator by diverting unwanted stresses from the wind to the turbine's tower, thereby optimizing performance. Lastly, the Haliade 150 offers greater efficiency with its 150 metre rotor (once installed in Belwind windpark, the 73.50 metre blades will be the longest blades installed offshore in the world) ensuring an improved load factor.

Belwind offers the perfect conditions for this purpose. A section of its phase 2 concession has been made available to serve as a testing site and laboratory for companies who are willing to invest in R&D and who have shown a dedication to establish themselves in the world of offshore wind energy, to test their latest technologies in real conditions.

The unique potential of the Belwind Test Site is not only its location in the North Sea, but also the fact that its concession and all permits are already in place. The grid connection agreement has been finalised, offering participants connection possibilities to the Belwind phase 1 offshore high-voltage station (OHVS) and the national grid. It also offers the reputable know-how of Belwind's partners, InControl and Parkwind.

Together Belwind, InControl and Parkwind provide thought leadership and expertise in the engineering and installation of foundations, turbines and electrical connections, its financing as well as the operation and maintenance of wind power plants, including offshore QHSSE. The participation in numerous research initiatives are proof of their dedication to serve the industry and to add substantial value to participating enterprises. An example is the involvement in the SIRRIS Offshore Wind Infrastructure Application Lab (OWI-Lab), an R&D initiative to support innovation projects concerning offshore wind energy. A compilation of datasets on wind speeds, gives more insights about soil behaviour and a stationary and floating LIDAR system gathers wind resource data in offshore conditions. OWI-Lab also installed sensors and a monitoring system on one of Belwind's turbines to gather insights in structural vibrations from wind and wave on the tower and foundation.

The Brussels Wind Energy Institute, BruWind, launched by the Vrije Universiteit Brussel-the Erasmushogeschool Brussel - l'Université Libre de Bruxelles, as an instrument to take the lead in the field of research in wind energy in Belgium, is also strongly supported by Belwind through active participation and access to their offshore power plants in various projects. Finally, through their active collaboration with MUMM for ongoing maritime environment monitoring. Belwind assists in the development of long term monitoring of the cumulative effects of wind power plants on the marine environment.

Frank Coenen, CEO of Belwind and InControl, is pleased with the prospect of being of service to Alstom: "Innovations such Alstom's new Haliade 150 are essential for the future of offshore wind energy generation. More than 90% of offshore wind energy is currently generated in northern Europe, in the North Sea, the Baltic and Irish Seas, and the English Channel. We have been a major player in this arena, particularly in the harsh conditions of the North Sea, and we are keen to share our expertise with other players to accelerate the development of knowledge and technology towards the achievement of Europe's binding target to source 20% of final energy consumption from renewables by 2020."



ALSTOM

Frédéric Hendrick, Vice President Offshore Wind at Alstom, mentioned "the importance for Alstom

to validate the technical and performance strengths of its new offshore turbine of 6MW with the

competencies of Belwind. We are working with very talented teams. I will also salute the

collaboration with local subcontractors active in installation and commissioning. Together we will

make it a success."

About Belwind:

Belwind NV's current power station in the North Sea consists of 55 turbines and represents an investment of

614 million Euros. Belwind has the following shareholders: The Colruyt Group, Dahm, Zeewind, PMV and Rabo

Investment. The Belwind phase 1 power station provides 160,000 households in Belgium with green power. Cooperation between local, regional and national authorities made it possible to develop the wind power plant

in a record time of 3.5 years and to build it in only 16 months.

www.belwind.eu

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About Alstom

Alstom is a global leader in the world of power generation, power transmission and rail infrastructure and sets

the benchmark for innovative and environmentally friendly technologies. Alstom builds the fastest train and the highest capacity automated metro in the world, provides turnkey integrated power plant solutions and associated services for a wide variety of energy sources, including hydro, nuclear, gas, coal and wind, and it

offers a wide range of solutions for power transmission, with a focus on smart grids. The Group employs

92,000 people in around 100 countries. It had sales of €20 billion and booked close to €22 billion in orders in

2011/12.

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