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LIVE @ WINDENERGY HAMBURG
25 September 2018

GE's 'easy-grow' turbine platform

GE has unveiled a 5.3MW onshore turbine as part of its newly-titled Cypress platform featuring a jointed blade design that will allow rapid upgrades with larger rotors and higher-capacity ratings.

The 5.3-158 offers a 50% increase in annual energy production compared with the supplier's existing 2MW and 3MW fleets.

The model also promises improved transport logistics and servicing efficiency, the latter based partly on the ability to carry out more up-tower repairs.

GE onshore chief executive Pete McCabe, speaking to reNEWS ahead of WindEnergy Hamburg 2018, said the two-piece carbon blade "provides flexibility" to vary lengths quickly without incurring additional development or logistics costs.

The Cypress platform is pitched at medium to low wind sites and also includes a previously announced 4.8MW unit.

The blade design means the unit has the potential to move to around 6MW with rotor diameters of 170-metres-plus possible, said McCabe. Further advances on both fronts are dependent on market demand, he added.

Previously "inaccessible" project locations are also in the frame based on the blade technology, which will be assembled on-site to reduce "costs for permitting equipment and road work", the company said.

McCabe declined to provide specifics of the blade design but said engineers from GE's aviation business as well as group companies LM Wind Power and Blade Dynamics worked on the component.

Static testing is complete and dynamic trials are ongoing.

A prototype 4.8MW unit is being manufactured in Salzbergen in Germany and is to be deployed by the year-end. The US company is targeting multiple global markets including in Asia, Australia and Latin America but is "dialling it in" for Europe, said McCabe.

Commitments for more than 1GW of orders for the platform are already lined up based on developers seeking permits for the hardware, he added.

Firm orders are expected in early 2019 with the debut 4.8MW iteration going out to customers in the fourth quarter next year and the 5.3MW in 2020.

■ New turbine models: p3

CLICK AND GO: GE believes blade upgrades will allow the Cypress onshore turbine to reach around 6MW Illustration: GE

TRENDING ON reNEWS.BIZ LIVE@ WEH 2018

Esvagt JV offers offshore blade vision
Danish shipping company Esvagt has formed a joint venture with artificial intelligence and blade specialist Wind Power Lab to support the control of offshore assets. The first assignment for EWPL Ocean will be an offshore blade assessment for the upcoming winter season.

Lagerwey climbs into WEH
A Lagerwey climbing crane is being installed on a wind turbine tower on the plaza outside the WindEnergy Hamburg trade fair. The crane is 55 metres tall and weighs 138.5 tonnes. Together with the tower the crane is the largest exhibit ever shown at the Hamburg Messe and Congress site.

James Fisher Marine expands in Germany
James Fisher Marine Services has opened a new base in Hamburg, Germany, as part of global growth plans.

Siemens Gamesa prepares to shine in Hamburg
Siemens Gamesa will showcase its portfolio of offshore, onshore and service products at Hamburg with the focus on both digital and analogue solutions hosted from an Xpert-Center.

WindEnergy Hamburg
The global on & offshore expo

Day 1 expo highlights

Turbine talk over breakfast
German wind industry group VDMA is running morning briefings on all four days of the show. On day one, senior executives from the main onshore and offshore turbine manufacturers are in the chair to talk about the current issues they face.
Atrium of A-Halls, between A1 and A4, 09.10-09.40

Taking Taiwan by storm
Jan De Nul offshore renewables manager Peter De Pooter will give an insight into the Belgian marine contractor's work on an offshore wind project in Taiwan, including details of typhoon and earthquake conditions.
Speakers corner, 13.15-13.25

Close-ups with start-ups
Hall B7 is playing host to a slew of German wind industry start-ups. The joint stand is a collaboration between the German Federal Office for Economic Affairs and Export Control at WindEnergy Hamburg 2018.
B7, every day

Danes descend on Hamburg
A Danish pavilion will host more than 100 companies and will be the setting for several events taking place during the expo, including a visit by Danish Energy Minister Lars Christian Lilleholt on day one.
B1, every day

Installation to boost offering at shipper OHT

Norwegian shipping company OHT is to take the wraps off a full offshore wind transport and installation offering at WindEnergy Hamburg 2018.

The contractor, which has to date focused on transport, is already bidding for extended-scope deals starting in 2021 to dovetail with delivery of a new installation vessel.

"China Merchant Heavy Industries will cut steel for the as-yet-unnamed ship in the first half of next year," OHT chief executive Torgeir Ramstad told reNEWS ahead of the expo.

"Depending on the volume of work we secure in the next 12 months we will commission CMHI to build two more identical vessels with the next one potentially arriving as early as 2022." Ramstad said the company's decision to enter the installation game is partly down to overcrowding in the transport market.

"More of the same was not an option and installation offers synergies with our existing business," he said.

The Ulstein-designed foundation installation vessel will be able to handle XL monopile and large jackets that will support the next generation of 10MW-plus turbines.

"This is not a jack-of-all-trades vessel. There are no unnecessary bells and whistles. This will allow us to offer cheaper rates than our rivals in the market," Ramstad said.

■ **OHT is exhibiting in Hall B2, booth EG 322.**

IN BRIEF

■ German company Max Bogl Wind will showcase new hybrid turbine towers at the Hamburg expo. The steel-and-concrete components enable hub heights of up to 190 metres.

■ WPD Windmanager is targeting new markets including Sweden, Spain and Chile as part of a new global business push starting at WindEnergy Hamburg. The wind farm management company is already responsible for more than 4GW in various markets.

■ Bachmann Electronics of Austria is to unveil a new grid measurement module this week, which it said will help wind turbine manufacturers better monitor grid activity and speed up commissioning.

■ German bearings manufacturer Schaeffler is exhibiting a range of new products, including optimised bearing supports and a new test procedure.

■ German mobile power solutions provider Bredenoord is to present new efficient and eco-friendly products and services including generator sets and storage batteries

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Wind EUROPE
The global on & offshore conference

Day 1 conference highlights

Breaking new ground: the wind industry and the global energy transition
Policymakers and industry leaders discuss how the sector can make a greater contribution to the economy, the environment and a more sustainable energy system. Keynotes include European Commissioner for Energy Miguel Arias Canete.
Brussels, 9.30-11.00

Blade design and maintenance
Get the inside edge on new onshore blade design, including presentations from GE and the Offshore Renewable Energy Catapult.
Hamburg, 13.45-15.00

Longer-term perspectives for wind in Europe
Senior industry figures from Nordex, Vestas, RES and others look at the financial, political and technological trends across the continent.
Brussels, 15.30-16.30

German market outlook: Finding new sites and reusing existing ones
Executives from Enercon, ABO Wind and Senvion address the key challenges in their home market including a scarcity of space for new projects, repowering, decommissioning, regulation, policy and new technology.
Brussels, 17.00-18.00

Upgrades name of the game for turbine teams

Turbine manufacturers will be unveiling a series of upgrades at the show designed to produce maximum results in the auction era.

Enercon is due to present its E-138 EP3 model at 4.2MW, up from 3.5MW, aimed at low wind sites.

A prototype of the 3.5MW version will be erected before the year-end with first deliveries to customers in 2019.

Siemens Gamesa will showcase its 4.5-145 4.5MW machine, up from 4.2MW, while Senvion will take the wraps off its low-wind 2.3M130 model with top power of 2.3MW and a 130-metre rotor.

Ming Yang of China is in Hamburg for the first time to introduce its two-bladed 3MW machine for both onshore and offshore markets.

Dutch outfit Lagerwey will present its 4MW low-wind L160 model while compatriot EWT is backing its D61 750kW unit targeted at height-constrained, low wind sites.

"Key drivers behind these breathtaking scaling and other product developments is the introduction of auction systems across the world and the increasing competition from other renewables, especially photovoltaics," said the show organisers.

"Key enablers are parallel advances in many areas ranging from the development of next-generation very long single-piece blades to new compact gearboxes," they added.

Helicopters to the rescue on leading-edge erosion

Leading-edge protection systems capable of shielding blades from erosion for the full operational life of wind farms could be commercialised within the next five years, WindEnergy Hamburg 2018 will hear.

UK innovation hub the Offshore Renewable Energy Catapult has been testing a metallic protection solution developed by compatriot aerospace outfit Doncasters Bramah. "The nickel alloy system offers the best rain erosion we have seen," said Kristen Dyer, ORE Catapult senior materials research engineering, who is speaking at the WindEurope conference at 13.45 on day one.

The Doncasters Bramah system is inspired by the materials used to protect helicopter blades and may be deployed for further testing on ORE Catapult's 7MW Levenmouth turbine in Scotland.

THE INTERVIEW reNEWS

Ahead of WindEnergy Hamburg 2018, reNEWS spoke to senior industry figures on the most vital issues shaping the sector. First up, Siemens Gamesa chief executive Markus Tacke *(left)*

Q How do you see the prospects for the wind sector for both the short and long term?

A I am confident that the global market for wind power is poised for strong growth to continue delivering clean, affordable and reliable power. Throughout Europe, and across the world, wind power is at the forefront of the energy transition.

We expect the onshore market to grow at 6% until 2020 and the offshore market to grow by 15% by 2025. For service, the market size will increase by 11% by 2020.

Q What are the major challenges facing the wind industry and how can these be overcome?

A The wind power industry is well positioned but needs to evolve and adapt to a challenging environment characterised by the implementation of auction mechanisms and by direct competition with other renewable energy sources.

In this sense technological development and investment in R&D are key success factors. We must seek new technologies, and develop innovative and creative new solutions.

We are exploring new ideas like floating offshore wind turbines, blade condition monitoring with autonomous drones and new materials to make nacelles lighter and more durable.

In the years to come, the exponential growth in electricity consumption will make it more necessary than ever to anticipate grid problems such as congestion and the lack of grids in some areas.

In this challenge digitalisation allows us to improve the management of electricity and the control of real consumption needs.

For many years, the principal challenge in the wind power business was simply to make turbines bigger.

Now we also need to make turbines smarter and the enormous amount of data we gather across the globe gives us unparalleled insight into the operations of our fleet.

Q What measures can policymakers and governments introduce to support the sector over the coming years?

A Strong and stable global regulatory frameworks, coupled with strategic commitments by domestic markets to renewable power, will favour our industry, the economy as a whole and, by extension, the realisation of our climate change goals.

In general, worldwide governments can also help us to lower cost through administrative simplification and streamlining.

In terms of the EU targets, we welcome the decision to increase the share of renewables in the energy mix to 32% by 2030. But, above all, we demand a breakdown in binding targets for the member states.

Q What is your company currently doing to lower the cost of energy?

A Advances in new materials and in control and logistics technologies have made it possible to considerably reduce the levelised cost of wind energy. These factors are compounded by increased efficiency, with machines with higher unit power and larger rotors.

In addition, we have designed our new wind turbine models to adapt to and be cost effective in much more demanding conditions, such as in deserts or icy areas, as well as in regions with difficult connection requirements. They are also designed to deliver good levels of profitability and energy costs in areas with low wind resources.

Likewise, the improvements in the operation and maintenance of the turbines coupled with the extension of the life of wind turbines are enabling us to reduce operating costs.

Photo: Siemens Gamesa

Conference to set agenda for wind industry, writes WindEurope chief executive **Giles Dickson**

Four days to transform the global energy mix

I am delighted on behalf of WindEurope to welcome you to the largest and most important event in the global wind energy calendar: the Global Wind Summit 2018.

As part of this international event, the WindEurope 2018 Conference will be the global epicentre for knowledge exchange, thought leadership and debate in the wind energy sector.

The theme of this event is 'breaking new ground' — and this is exactly what our industry and our conference is all about.

Starting out as a niche European industry, the wind sector is now a dynamic, vital force all over the planet — creating jobs, transforming economies and actively decarbonising the world's energy mix.

Across four themed days we will build on the ground-breaking achievements of our industry and set the agenda for utterly transforming the global energy mix by breaking new ground in the years ahead.

On day one we will focus on electrification and sector-coupling. The full decarbonisation of the world's energy mix requires a dramatic increase in the amount of renewables powering three sectors: transport, heating and cooling, and industrial processes.

Wind energy is uniquely positioned to be the global leader in this process — our conference sessions will tell you how.

On day two we will tackle the topic of digitalisation and digital solutions for wind. Digitalisation is a real buzz word these days — but it is crucial for industry stakeholders to look beyond the hype and get up to speed with the dramatic changes the digital revolution is set to unleash.

We will be talking about new ways to design, manufacture, operate and maintain wind farms; how to predict failures in wind turbine components with unprecedented accuracy and optimise energy yields; how data ownership, data sharing, and cyber security are going to become central to our sector and how digital solutions can create enable system integration, lifetime extension, and cost reduction.

Day three will focus on finance, notably how we are going to finance wind energy in an increasingly merchant environment. With record-price tenders, do we need to think beyond traditional support mechanism models? What role will corporate power purchase agreements play? What new financing instruments do we need — and what market design and policy framework?

Our expert panels and debates will give you the low-down on the future of finance in wind energy.

Finally, day four will look at new and emerging markets for wind and the long-term outlook. We will also look at how we can retain and further enhance the social and public acceptance of wind energy as the sector continues to expand.

Once again, I wish you a very warm welcome to the conference and summit. Here's to a wonderful event.

Global exhibitors footprint growing at Hamburg 2018

WindEnergy Hamburg 2018 will give delegates and exhibitors the edge on dealing with the challenges of "dynamic" market conditions in both the onshore and offshore wind sectors, according to organisers.

Hamburg Messe maritime and technology fairs director Claus Ulrich Selbach said participants will descend on the German port city to get to grips with a range of key topics.

Among the wares on show will be new smart technologies and digital services that will assist developers working in markets "characterised (by) high cost pressures" and rapidly changing political frameworks, he said.

Delegates will also be able to chase "growth potential in new markets" at the show, said Selbach.

This year's event is marked by greater participation by international players with new onshore and offshore markets, particularly in Asia, coming to the fore. There will be 22 national and regional pavilions at the expo.

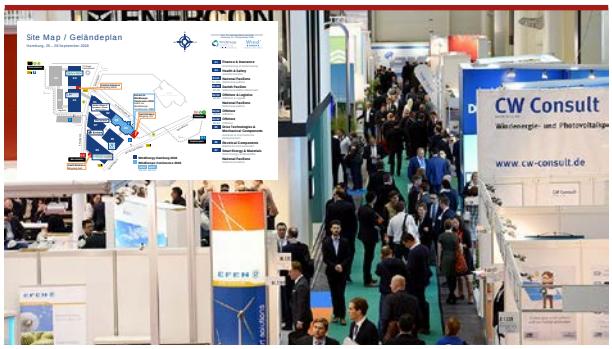
"In 2018 more than 1400 exhibitors of WindEnergy Hamburg include companies and industry associations from some 40 countries versus exhibitors from 34 countries in 2016," said Salbach.

"They come both from the big markets such as China and the US, and from emerging wind markets such as India, Russia and Taiwan. All in all the proportion of exhibitors from abroad is about 50% now."

The conference offering will give industry players a "global platform (to) find solutions" and generate synergies with partners on new projects, he added. "The aim is to learn from one another and to avoid previous mistakes made in developed markets when moving into new ones. That is how we are playing our part in the further expansion of wind energy worldwide."

More than 1400 exhibitors are lined up for the four-day biennial wind industry powwow, which encompasses the WindEnergy Hamburg exhibition and WindEurope conference. Organisers are putting the spotlight on cost efficiency and smart energy as well as dynamic markets, added Selbach.

"But as the world's leading wind energy expo, we cover all subjects for the whole of the value chain, for the onshore sector as well as for offshore wind," he added.



GET YOUR BEARINGS: click here to download a floor-plan for the WindEnergy Hamburg 2018 expo and conference

Photo: Hamburg Messe und Congress/Nicolas Maack

Offshore wind in the limelight

Offshore wind is set to take centre stage at WindEnergy Hamburg 2018, according to organisers. More than 40% of exhibitors this year will offer products and services to the industry making the exhibition among the largest for the sector, said Selbach.

One of the key themes is how to achieve cost-effectiveness by deploying next-generation turbines.

Several manufacturers including Siemens Gamesa, MHI Vestas, GE and Senvion are all working on 10MW-plus models and will be exhibiting.

Several country delegations are also due to exhibit at the expo, including the Belgian offshore wind cluster known as BOC, which has 60 members.

"Our partners will highlight their specific know-how and experiences to international industry visitors," said BOC chairman Christophe Dehaene.

Installation specialists and foundation fabricators are also among those showing off their wares.

Balloon goes up for a pilot offshore wind-to-hydrogen plant in Germany

WindEurope conference sector-coupling strand to be told of potential for stable generation optimised for grid, writes **Hans-Dieter Sohn**

The German power-to-gas sector is eyeing offshore wind as the next frontier as it steps up calls for a large-scale pilot project.

Hydrogen and fuel cell association DWV wants to install a 50MW demo to show how the combination of an offshore wind farm with onshore hydrogen electrolysers could lead to more stable generation optimised for the grid.

"Converting renewable electricity into hydrogen or synthetic gas offers great long-term potential," said DWV chairman Werner Diwald.

Power could effectively be stored as hydrogen or synthetic gas to be transported across existing pipelines and used later in fuel cells or as heat, he added.

Some 30 power-to-gas installations are already in operation in Germany. "This gives us the confidence to deploy the technology at a larger scale."

Coupling green power with other industries is the theme for day one of WindEurope conference 2018. Several sessions will discuss the role of wind in decarbonising the wider electricity sector as well as how the sector can play a role in heating, transport and other industrial processes.

German trade association VDMA Power Systems chief Matthias Zelinger said power-to-hydrogen applications are a leading option for the "high-volume and long-term storage of... renewables".

Sector-coupling of power and gas could also help avoid grid bottlenecks that have slowed the progress of offshore wind in Germany. "If the grid can only take, for example, 300MW, we could offer this amount in a stable way by combining an offshore wind farm with a power-to-gas installation," said Orsted Germany head Volker Malmen.

The hydrogen sector is also set to benefit from a draft law, which will allow developers to build offshore wind projects that would directly produce the gas.

Under the amended law, expected to be adopted by the year-end, maritime and hydrographic agency BSH will designate off-grid areas for this purpose.

Those sites will not be auctioned off and will not benefit from a feed-in tariff but operators could produce green hydrogen.

Challenges for potential offshore wind-to-gas projects include marketing the resulting hydrogen.

Refineries are looking to reduce their carbon footprint by substituting hydrogen based on fossil fuels with green hydrogen but the cost factor is expected to come into play with the latter likely to be more expensive, said Diwald.

Another potential market is the car industry as manufacturers need to reduce carbon dioxide emissions of their fleets to meet EU targets, he added. ■

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