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2 April 2019

Siemens Gamesa 10MW tilt at offshore cost cuts

Siemens Gamesa is developing a new 10MW prototype turbine for an EU-backed research project targeting further cost reductions in offshore wind. **p2**



Esteyco eyes on first sales for telescopic turbine tower

Spanish engineer Esteyco is looking to export its self-installing offshore turbine foundation globally after completing a first 5MW unit off the island of Gran Canaria. **p3**

Offshore gets to grips with power price risk

Financial advisory Green Giraffe sees investors adapting to the new offshore competitive auction environment. **p4**

THE INTERVIEW reNEWS

Today, Nordex chief executive Jose Luis Blanco **p5**

Welcome to the show

WindEurope chief Giles Dickson opens the doors in Bilbao. **p6**

5MW+ hardware on Bilbao catwalk

Turbine manufacturing heavyweights will this week officially take the wraps off a slew of 5MW-plus onshore machines that promise developers further reductions in the levelised cost of energy.

Germany's Nordex will show off the new N149/5.X machine at WindEurope 2019, its first move into 5MW-plus territory.

Vice president of strategy Till Junge told reNEWS the unit is the result of a series of evolutionarily rather than revolutionary steps. Several components, including blades, will be taken from earlier models.

"It will use similar components to the 4MW versions so we can use almost all of our existing supply chain. The overall architecture of the turbines is the same, which reduces risk," he said.

The 5.X will "not be the last" development in the Delta4000 series, which includes the N149/4.0-4.5 and N133/4.8, Junge added.

A prototype of the latest model will be installed in the second half of 2020, either in Germany or Spain, and serial production will start in 2021,



COMPACT CONTENDER: Enercon will begin prototype testing of the E-160 4.6MW turbine, part of its EP5 platform, in early 2020

Illustration: Enercon

he said. "We are confident we can deliver the N149/5.X as per the timeline and without hiccups."

German rival Enercon will take the opportunity of the Bilbao show to present its EP5 platform, featuring E-147 5MW and E-160 4.6MW turbines based on technology from Dutch company Lagerwey, which was acquired by the manufacturer last year.

Prototype testing is planned to start in early 2020 with serial production launching

shortly after, said sales director Stefan Lutkemeyer.

"Our sales team is already in positive negotiations with customers in different markets worldwide," he added.

The new turbines are based on a "compact and efficient" design that allows an optimised process across production, transport and installation, Lutkemeyer said.

US big-hitter GE Renewable Energy will exhibit its 5MW-plus Cypress platform with first European orders potentially being shipped by the end of the year, according to a spokesman.

"We are working with customers bidding into a number of different (capacity) auctions in multiple countries," he said.

"Cypress is a bigger, more efficient and effective machine, bringing lower levelised cost of energy that fits well with the auction frameworks that we see in European countries."

Denmark's Vestas will exhibit its recently-launched EnVentus platform, which includes the V162-5.6MW and V150-5.6MW iterations.

TRENDING ON reNEWS.BIZ LIVE@ WE 2019

Fred Olsen embraces ZX Lidars technology

Fred Olsen Renewables has placed an order for ZX Lidars technology to be integrated with the nacelles of all the Vestas V150-4.2MW turbines to be deployed at the 105MW Hegaliden onshore wind farm in Sweden, which is expected online in 2020.

Prysmian presses turnkey case

Italian cable manufacturer Prysmian will present its range of turnkey services and products at WindEurope 2019 this week. Vice president of the submarine business unit Raul Gil said the company offers a one-stop solution for transmission system operators and offshore wind farm developers.

Turbine kit supply going global

The supply of turbine components will become increasingly global as auction-based support regimes continue to push project economics to the top of the agenda, according to Steve Lockard, chief executive of US blade manufacturer TPI Composites and one of three event ambassadors.

Sener floats ideas in Bilbao

Spanish engineering and technology group Sener will show off its floating offshore wind expertise in Bilbao this week. The company said it is dedicating a large part of research and development into solutions that may reduce costs for future floater projects that feature high-powered turbines.

Big Data

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Day 1 highlights

When in Rome...

Swing by the Basque stand at lunchtime on day one to enjoy traditional dancing and a taste of some local cuisine.

Stand B20-D32, Hall 1, 13.00

Concession session

Efficient permitting is the key to unlocking market potential. Speakers including representatives from the Dutch Ministry of Economic Affairs and Climate, ScottishPower Renewables and Enercon discuss best practice for consenting.

Luxua 2, 13.30-14.45

Women in Wind

The Global Wind Energy Council and the Global Women's Network for the Energy Transition launch the Women in Wind Global Leadership Programme.

Stand 3-F24, 16.00-16.45

Swede mead

Technology company Greenbyte is having a stand party on day one and will have samples of craft beer, brewed in its hometown of Gothenburg, Sweden, available for tasting.

Stand 3-D56, 17.00

Bilbao banter

Unwind after a busy day one with drinks and nibbles during the conference opening reception at the WindEurope stand. Open to all delegates.

Stand 3-E22, 18.00-20.00

Siemens Gamesa 10MW tilt at offshore cost cuts

Siemens Gamesa is developing a new 10MW prototype turbine for an EU-backed research project targeting further cost reductions in offshore wind.

The manufacturer is working on a series of innovations for the unit, including a compact generator and improved blade aerodynamics, according to the company's project lead Jesper Moeller (pictured).

Deployment of the machine, which is being developed for the i4Offshore project, is planned at an as-yet-undisclosed location possibly in 2022 or 2023.

New features could be incorporated into Siemens Gamesa's future fleet of offshore turbines from 2022, added Moeller, who will give an update on the project on day one of WindEurope.

The turbine will be "at

least 10MW" and is separate from the company's planned 10.0-193 model, he added. A prototype of the latter is due to be installed later this year in Denmark.

The i4Offshore programme, which started late in 2018 and will run for five years, will also develop a 1000-tonne suction



bucket jacket foundation with a concrete transition piece, which has the potential to cut installation and manufacturing costs by up to 40%.

Moeller said the use of concrete as well as a compact and modular bucket design will unlock cost reductions. "We will also maximise robotics welding," he added.

The project is targeting a 30% cost reduction in cabling mainly by using onshore wires, which are cheaper than subsea lines. Cables will be protected by watertight plastic tubes.

"It also means there is more competition as there are many more suppliers of onshore cables compared with those supplying subsea cables," said Moeller.

An up to 1.5GW array featuring the demo unit will be simulated in the later stages of the project.

Siemens Gamesa is leading the effort along with Aalborg University. Other partners include fabricator Bladt and installation specialist Fred Olsen Windcarrier, among others.

■ Jesper Moeller will discuss the i4Offshore project at 'Developments in offshore wind technology' on Tuesday at 13.30 in Luxua 1.

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Esteyco eyes on first sales for telescopic turbine tower

Spanish engineer Esteyco is looking to export its self-installing offshore turbine foundation globally after completing a first 5MW unit off the island of Gran Canaria.

Chief technology officer Jose Serna, who will give a presentation at WindEurope 2019, told reNEWS the company is in talks with two developers in the US.

Feasibility studies are underway for projects off the north-east coast of America as well as in other markets, including Europe and Taiwan, he said.

The Esteyco unit comprises a concrete base and telescopic turbine tower that can be assembled in port and towed

offshore for installation. The process could help to bypass Jones Act restrictions that limit the deployment of overseas vessels in the US, said Serna.

“Many of the specialist heavylift vessels in operation are operated or owned by European or non-US companies,” he added.

“Our solution supports domestic content requirements as the components can be made by local companies. Tugboats are all that are needed to convey the turbine and foundation structure to site.”

Esteyco, which is partnering with compatriot construction outfit Cobra, commissioned the debut unit featuring



Photo: Esteyco

a Siemens Gamesa 5MW turbine (pictured) last month at the Elican project.

“We have been able to show that... installation totally independent of offshore cranes and specialised heavylift vessels is commercially viable.”

Esteyco said it believes the technology also has other benefits, including fewer environmental impacts and easier decommissioning.

■ Serna will give a presentation on Thursday at 10.45 during the ‘Innovative solutions for installation and operations’ session in Auditorium 2.

Next-level monitoring kit on view

Two European technology companies will unveil their latest turbine monitoring equipment at WindEurope 2019. Sweden’s Greenbyte is launching a new artificial intelligence platform claimed to reduce production losses due to hardware faults by 12%.

Predict, which detects issues such as bearing temperature spikes before they lead to shutdowns, has undergone a year of beta testing.

French start-up Sereema is to show off a beefed-up version of its WindFit product. New features include sensors for measuring wind speed and turbine output in addition to existing tools.

The original hardware, which was commercially launched in 2017, has been installed on 200 turbines and can enhance annual energy production by an average of 2%, the company claimed.

Shoreline steps on to dry land

Norwegian software company Shoreline is to expand the marketing of its simulation program to the onshore wind sector.

Managing director Michael Bjerrum said the technology, originally developed for offshore wind, will be made available for a range of new clients including developers, turbine manufacturers and construction companies.

“The expansion into onshore wind is part of our efforts to adapt the core software for the wider energy market, including solar, hydropower, marine energy, energy storage systems and substations,” he added.

Shoreline’s cloud-based simulation technology allows customers to build virtual models of wind farms to simulate and optimise construction and O&M.

“What takes teams of people hours and days to accomplish can be done in just a few minutes,” said Bjerrum. Shoreline is exhibiting at WindEurope 2019.

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#GOWS

Financial advisory Green Giraffe sees investors adapting to the new competitive auction environment, writes **Robin Lancaster**

Offshore gets to grips with power price risk

renews.biz

Offshore wind remains an attractive proposition for investors even as

governments tighten the purse strings on price supports for European projects, according to renewable energy financial advisory Green Giraffe.

The brave new world of competitive auctions is driving down costs towards parity with wholesale power prices and zero-bid tenders exposed fully to merchant risk are not as frightening as they might



once have seemed to investors, said director Jerome Guillet (left). "Merchant risk is risk that banks

understand and can take. They have done it in other markets such as natural gas," he added.

Guillet, who will speak in the 'Financing offshore wind in an auction environment' session at WindEurope 2019 on Wednesday, said he believes developers are well placed to mitigate power price risk through hedging. That could be done either through a power purchase agreement for all or part of the volume to be generated or through a bespoke financial instrument.

PPAs for offshore wind output are starting to become more widespread. In February, Centrica's energy marketing and trading arm signed a 15-year deal to trade and balance 76.7% of the output from EDPR's 950MW Moray East wind farm off Scotland when commercial operations start in 2022. The remaining electricity will be bought by Engie, which holds a 23.3% stake in the project.

Orsted recently signed the first offshore wind corporate PPA in the UK after Northumbrian Water agreed to buy 100MW of output annually for 10 years from 1 March from the Danish developer's operational 573MW Race Bank project off the English coast.

In general, PPAs for

offshore wind are more challenging to pull off than for onshore projects due to the larger volumes of power generated, said Guillet. "You need companies that not only require the large volumes but are also creditworthy enough."

Banks could take on the merchant risk themselves but if they follow this route they would only do so at "conservative" price levels, he added.

In the short term, most European offshore wind projects are likely to need, and secure, some form of government-backed support such as the Contracts for Difference regime in the UK.

Banks are "comfortable" with all the various tender and auction models deployed by European governments for offshore wind deployment, said Guillet. Financing for those projects, although competing in a lower price environment than previously, is expected to continue to follow a similar path to the past, i.e. balance sheet funding or project finance.

The former approach involves a developer using funds available from their balance sheet and a lender taking risk on the company, not the project. Project finance involves non-recourse debt funding with the lender expecting the wind farm to deliver returns and repay loans.

Those two approaches have financed roughly 50% each of all offshore sites, said the Green Giraffe director. A third method, which takes the balance sheet model and then refinances the project once built, involves a lender taking on some of the project operational risk.

The technological progress of offshore wind engineering has been mirrored by similar progress in financial services, said Guillet. "It is well understood, provides good returns and is fairly priced. No one is doing anything crazy in offshore wind." ■

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THE INTERVIEW reNEWS



Setting the scene at WindEurope 2019, senior industry figures talk to reNEWS about the vital issues shaping the sector. Today it's the turn of Nordex chief executive Jose Luis Blanco (*left*)

Q What are the main subjects that you want to see debated during this week in Bilbao?

A I would like to see the questions of how we can balance wind industry interests with those of others, such as nature conservation and aviation, debated with stakeholders. Although polls show the majority of society in Europe favours wind energy, we face a debate on the acceptance of it.

To address populism against wind, there is a need for fact-based discussion and dialogue about how to best balance interests. A clear picture could support an uptake in permitting, which is needed to achieve climate and energy targets.

Q How do you see the prospects for the Spanish onshore wind industry?

A In the short term, we have a great amount of onshore megawatts from the 2017 auctions and some additional non-auction volume to be installed over the next 12 months. That will bring a lot of activity to a long stagnated market. With 4.5GW of new capacity from the three auctions held in 2016 and 2017 due online by the end of this year, permitting, manufacturing, transport and installation will be key.

There is also a great deal of traction from

increasing interest in bilateral power purchase agreements and the feasibility of projects (built) at wholesale prices. On the financing side, we see foreign investments gaining momentum as ever more projects are realised.

With regards to regulation, the new Spanish National Climate and Energy Plan in conjunction with the European Clean Energy Package can provide a decent long-term framework in the years to come. The framework for repowering is lacking and should be given more attention. Repowering needs to have a relevant role to achieve long-term goals.

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

A In order to be competitive against non-European Union competitors, there is a particular need for being fast to market with new and innovative products. The major hurdle is not research funding but the permitting of prototypes. Politics should focus on framework conditions that incentivise fast-track permitting of prototype installations as well as streamlined certification processes.

A sensible trade policy that does not burden

the manufacturing base with import duties is also needed. On the market side, it is important for long-term visibility of volumes and well designed, stable regulatory frameworks.

Q Has the sector convinced policymakers/governments and persuaded public opinion that it can be a big part of the future energy mix?

A There are some issues that need addressing. Firstly, there is public and political discourse that opposes wind. I think it needs effort from politicians, the industry and society to ensure that discourse is not regarded as reflective of the majority public opinion, which is in favour of wind.

Secondly, the level of local participation differs between regions. In Germany, we have observed regions with a strong local participation in project planning and value creation are much more supportive than regions with less participation.

Thirdly, we need to ensure co-existence with other interests such as nature conservation and aviation. Finally, there is a need for a fair political discourse on climate change and energy with regards to the wider public. Wind is the most competitive, domestic source of energy and does not emit carbon or any other health-damaging emissions. Photo: Nordex

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Welcome to the show

Day 1 highlights

Ministerial session

Polymakers and wind industry leaders tackle the pressing issues.

Auditorium 1-2, 09.00-10.45

Brexit: what's next?

The panel will take stock of the UK's impending withdrawal from the EU and discuss the next steps.

Auditorium 2, 13.30-14.45

Developments in offshore wind technology

Presentations will cover techniques to improve the design of offshore turbines and wind farms to reduce LCOE plus optimisation of installation and operations.

Luxua 1, 13:30-14:45

Commercialisation of floating offshore wind

A two-pronged session will explore governments' role in making floating wind commercially available and the technical challenges.

Luxua 1, 15:15-16:45

I am delighted to welcome you to the WindEurope 2019 conference and exhibition in Bilbao. The theme of our annual event this year is 'Delivering a clean economy for all Europeans'.

It is about the people who work in our industry: are there enough of them, are the right skills out there, how can we best support what we hope will be a growing workforce?

It is about the citizens of Europe and wind: how to maintain their continued support for the expansion of wind and how wind benefits local communities.

It is also about how wind can help deliver a 'just' energy transition for all regions of Europe, including coal mining areas and places dependent on energy-intensive industries. Bilbao and the Basque Country are shining examples of how the wind industry can support economic transition in heavy industrial areas.

The Basque Country has become a significant industrial

WindEurope chief Giles Dickson (right) opens the doors in Bilbao

cluster for wind energy, producing and exporting cutting-edge equipment and technology, so much so that it has one of the highest concentrations of the wind energy supply chain of any region in the world.

There could not be a better time to be in Spain. The industry is growing again with 4GW of new wind capacity due online this year and the government has ambitious plans to 2030.

We are also seeing the first stirrings of activity in offshore wind. The Canary Islands have big plans for floating wind and installed their first turbine off Gran Canaria last year.

Spain already has a vibrant wind energy manufacturing base and supply chain in place employing 22,500 people. That number is now rising by a further 13,000 with the current build-out.

That supply chain will be on



full display at the exhibition along with over 300 other exhibitors from 50 countries. Running alongside the exhibition is a packed conference programme.

We have some top speakers lined up. The Spanish and Portuguese energy ministers will be here, as will ministers from Norway and Croatia.

Polish Deputy Environment Minister Michal Kurtyka, who chaired the recent UN climate talks in Katowice, will be joining them as will a host of senior officials from the European Commission and European Investment Bank plus national regulators and grid operators.

The conference will cover all the key technology developments, market trends and the latest on finance

and government policy. We will look at grids and system integration, repowering and lifetime extension, recycling of blade waste, power purchase agreements, trade issues and Brexit. We also have two full-day workshops on skills and on regional economic transition.

Once again, I wish you a very warm welcome to the WindEurope Bilbao 2019.

reNEWS

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