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Wind EUROPE CONFERENCE & EXHIBITION 2017 28-30 NOVEMBER AMSTERDAM

DAY ONE

Lack of EU ambition could lead to 132,000 fewer wind jobs by 2030

CHRISTOPHER HOPSON

Europe's wind industry risks missing out on €92bn of future investments and 132,000 potential jobs by 2030 unless policymakers become more ambitious, according to a report published today by WindEurope.

Job growth in the industry has flatlined in the past five years as many countries have become less ambitious on renewables with half the EU member states investing nothing in wind last year. And net exports of European wind equipment are falling in the face of strong competition from emerging economies — down from €3bn in 2011 to €2.4bn last year, says the *Local Impact, Global Leadership* report.

WindEurope says the policy ambition and clarity needed to sustain wind's contribution to the European economy is not currently in place. "We need an EU renewables target of at least 35% by 2030. And we need clarity on post-2020 market volumes so the supply chain knows what to invest and where," WindEurope chief executive Giles Dickson tells *Recharge*.

"Wind is a smart choice for the economy. It's a European industrial success story. But clear and ambitious targets and policies are essential to sustain the jobs and growth our industry supports."

The report shows that the European wind industry contributed €36.1bn to the EU's GDP last year — €22.3bn directly, and €13.8bn from indirect economic activity.

"The European wind industry also represents a growing industrial sector supporting 263,000 jobs and making a notable direct and indirect contribution to the European economy," says the report, which was carried out by consultant Deloitte on behalf of WindEurope.

It also shows that in 2016 the industry spent 4.9% of its turnover on R&D activities and contributed €4.9bn in taxes. From 2011-16, wind energy in the EU reduced fossil-fuel

CONTINUED on Page 6

An Engie technician on top of a wind turbine in Radenac, western France

Photograph | AFP/Getty

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EU Commission Vice-President Maroš Šefčovič

EU Commission backs 30% 2030 renewables target as costs fall

CHRISTOPHER HOPSON

The European Commission (EC) wants to increase the EU's 2030 renewables target from 27% of the electricity mix to 30%, following a rethink prompted by the recent fall in wind and solar prices.

The European Parliament is due to debate the proposal today, but is expected to vote for an even more ambitious 35%, although any move to increase the target would still need to be approved by EU member states.

Critics have called the current 27% 2030 goal — agreed by EU leaders in 2014 and with no legally-binding targets on individual states — "toothless" and a "major disappointment", warning it will undermine investment in renewables.

Maroš Šefčovič, the EC's vice-president for energy union, says that recent price falls mean that today's projected cost of reaching 30% is roughly the same as the 2014 projected cost of reaching 27%.

WindEurope chief executive Giles Dickson says the Commission should go further. "The affordable and economically desirable target isn't 30%, it's 35%," he tells *Recharge*.

"Just look at what's happening: Germany has just awarded 1GW of onshore wind at €38/MWh [$44.50/MWh]; Spain's last auction delivered €33/MWh.

"It's not clear the Commission have taken full account of this, or of the recent increases in capacity factors for wind energy. The average capacity factor for new onshore wind farms is now between 29% and 35% depending on location. And the average capacity factor for new offshore wind farms is now 48%."

Six of Europe's largest energy companies — Iberdrola, EDP, Enel, EnBW, Ørsted, and SSE — warned earlier this month that the EU's current renewables target "lacks ambition" and called on policymakers to adopt the more ambitious 35% target.

4GW of German turbines ripe for life extension

BERND RADOWITZ

Some 80% of the roughly 5GW of wind turbines that will lose feed-in tariff support in 2020 could prolong their operating lifetime and still generate profits, according to 8.2 Consulting.

The 7,000 machines are the first generation of turbines for which support under the EEG legislation enacted in 2000 will end after 20 years.

"They will have to compete with the electricity market price — that is not possible for all of them," says Philipp Stukenbrock, head of sales and marketing at 8.2 Consulting, which carries out turbine inspections as part of a lifetime extension assessment.

The operating life of some machines could be extended by up to 22 years, but to be profitable, turbines would require a cost-cutting O&M strategy and the higher wholesale prices expected after 2025, when Germany is due to exit nuclear energy, Stukenbrock tells *Recharge*.

Vestas is No.1 turbine supplier in H1 2017, says Navigant

KARL-ERIK STROMSTA

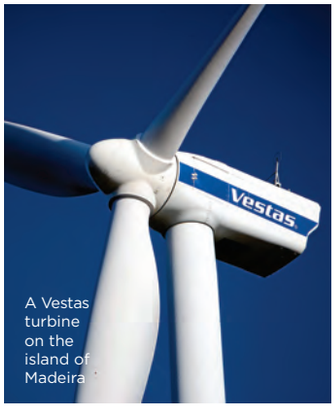
Vestas reported more turbine orders than any of its rival OEMs in the first half of 2017, amid a significant decline in publicly reported orders globally, according to Navigant Research.

Total reported orders for wind turbines fell to 11.6GW in the January to June period, down from 13.4GW in the same half-year window in 2016, Navigant says in its *Wind Turbine Order Tracker 4Q17* report.

Navigant notes that M&A activity has "rattled" the global wind industry over the past year, including the merger of Siemens and Gamesa, and Nordex's acquisition of Acciona. But it says it's difficult to directly link the reduction in turbine orders to the consolidation.

The single most obvious factor behind the order decline, Navigant says, was a multi-gigawatt drop in India, where a shift from a feed-in tariff structure to competitive tenders has introduced big market uncertainty and perhaps pushed orders into the future.

The report — which tracks all publicly announced wind orders — says Vestas reported 4,266MW of deals in the first half of the year. GE took second place with 2,928MW of orders reported, followed by Siemens Gamesa (1,632MW), Suzlon (1,024MW) and Senvion (850MW).



A Vestas turbine on the island of Madeira

Photography | AFP/Getty | Vestas

Senvion: 10MW-plus model 'in early 2020s'

BERND RADOWITZ

Senvion will launch its 10MW-plus turbine in the early 2020s, in time to be used in offshore wind projects from upcoming tendering rounds in Germany, Taiwan and the US, the OEM's vice president for offshore tells *Recharge*.

"The development of the new turbine is moving well ahead," says Cornelius Drücker.

"We can meet the customer milestones, which is important, because everybody needs to get ready for the next round of auctions [in Germany and elsewhere in Europe]."

The turbine manufacturer is talking to companies that will compete in Germany's 1.6GW offshore tender next April.

"We are ready to meet the installation dates for the German auction projects. And there I do not mean the He Dreith project, which will be built by 2025. We are ready to meet the dates for the early projects of the German auctions," Drücker said.

Construction of a Senvion 6MW wind turbine at the Nordsee Ost wind farm

Photograph | Senvion

Commissioning dates for the 2018 auction will be earlier, and 500MW of the round's volume is reserved for Baltic Sea projects.

"We know that Baltic projects will be winning in the auction, because 500MW is guaranteed for it in the auction scheme. And we would not be clever if we don't aim to supply for those winning projects," he says.

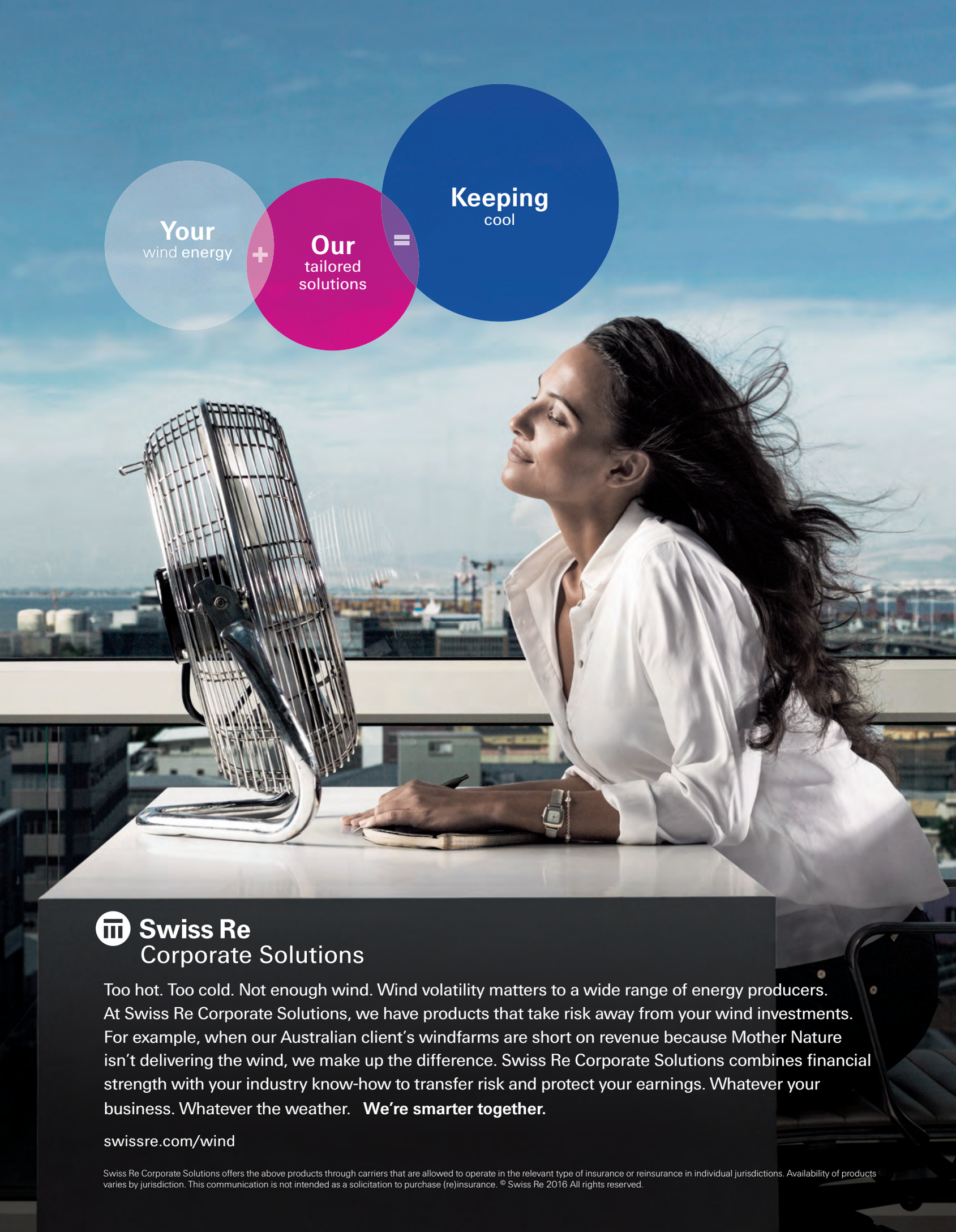
Senvion is also in talks with potential customers in Taiwan's fledgling offshore market, as well as in the US, where the winners of a first tender in Massachusetts will be announced next year.

"Taiwan is a big market. A good example for a country, which is in need of energy and that understood that offshore wind is a very good form of renewable energy," Drücker says.

The German turbine maker is not disclosing the exact size of its future offshore model, but Immo von Fallois, Senvion's vice-president for communication, tells *Recharge*: "If you say 10MW-plus, you have to underline the 'plus'."

"We are giving further information [on the size] to interested customers and support them directly with their project on a project-specific basis," Drücker says.

Senvion, together with 150 partners, have applied for funding under the EU's Horizon 2020 R&D programme to help with the development of its giant turbine.



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132,000 fewer wind jobs

FROM Front Page

imports by €32bn, saving 166 million tonnes of carbon emissions last year alone.

Wind energy, the study says, also creates value for the wider economy. Every €1,000 of turnover generated in the wind industry generates €250 of economic activity in other sectors. Also much of the industry and supply chain is located in economically less-advantaged areas.

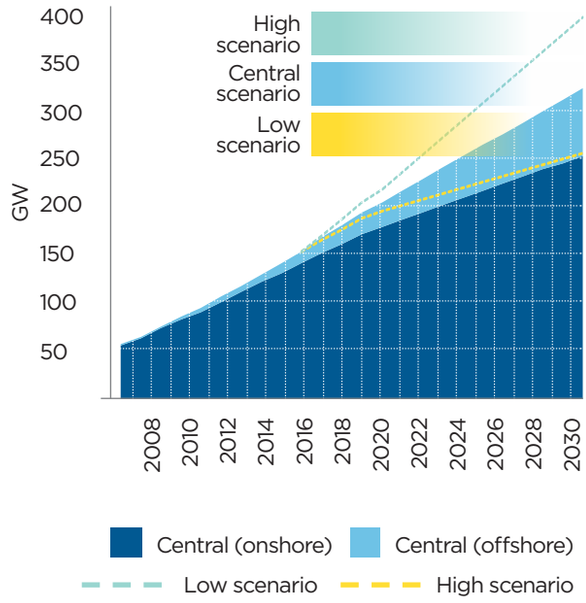
The report recommends that EU member states adopt early, binding National Energy and Climate Action Plans to provide clarity to investors on post-2020 market volumes, including lifetime extension and repowering.

It also suggests the post-2020 Renewable Energy Directive should set clear design rules for renewable energy support mechanisms, including technology-specific tenders.

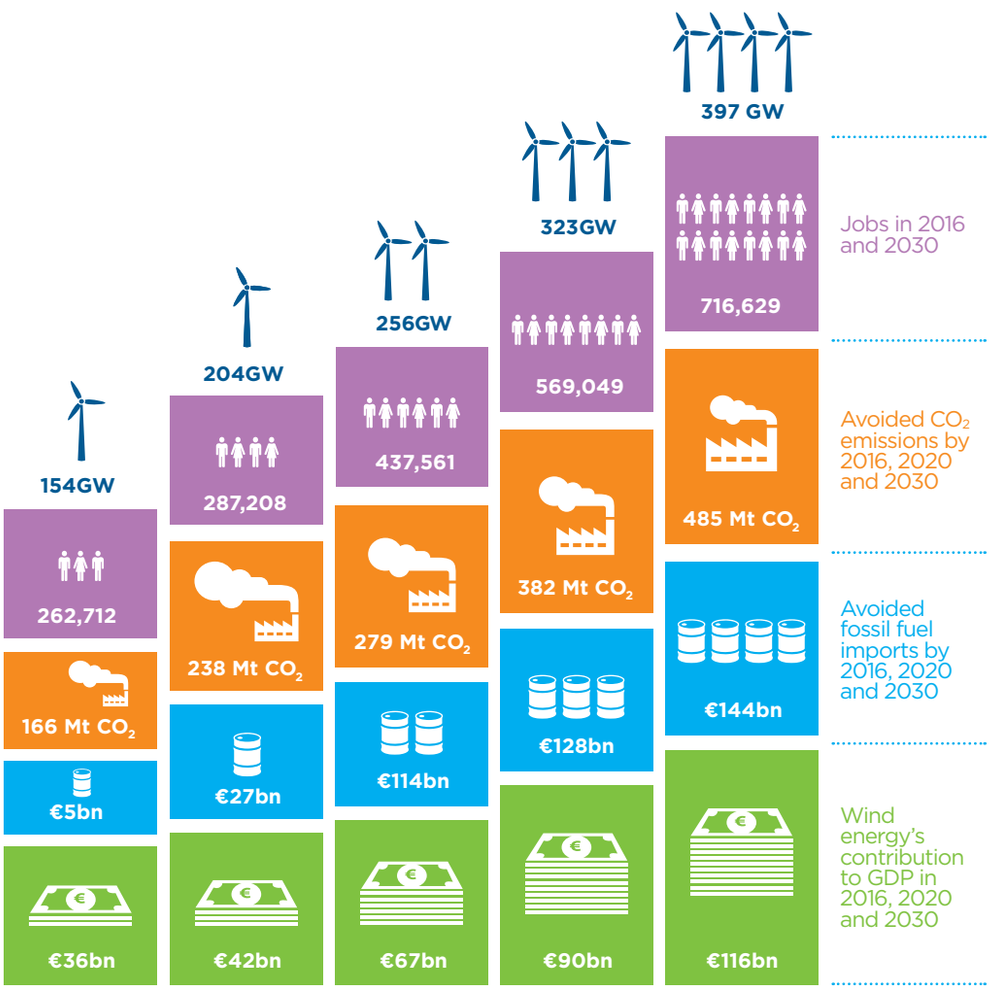
"We also need R&D and industrial policies that help Europe maintain its technology lead and continue to export," adds Dickson. "If all this happens, wind could meet 30% of Europe's power needs in 2030 and we'd generate more jobs and growth for the economy.

"But if it doesn't, Europe will miss out on €92bn of investments and 132,000 jobs: that's the cost of non-ambition. What's more, ambition costs less than the alternatives; onshore wind is the cheapest form of new power in most EU countries; and offshore wind isn't far behind with costs falling over 60% in three years." R

Cumulative wind power scenarios

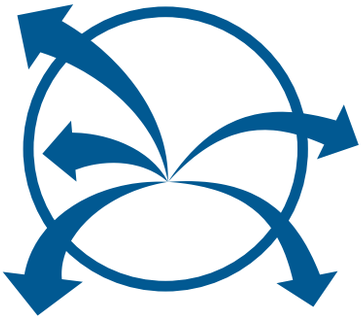


Macroeconomic benefits of wind energy in 2016, 2020 and 2030



Source | WindEurope/Deloitte

A net exporter



2016: €2.4bn

An innovation hub

2016: 4.9% of the wind industry's turnover goes to R&D activities

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Enercon turbines near Berlin

Prices fall to €38.20/MWh at German tender

BERND RADOWITZ

Winning bid prices in Germany's 1GW third onshore wind auction fell to record lows, with almost the entire acreage won by community wind groups that have more time to complete their projects — worsening industry fears of a dangerous lull in installations in 2019 and 2020.

The average price of winning bids fell to €38.20/MWh, down from €42.80/MWh at the last 1GW auction in August, and €57.1/MWh at the first 807MW round in May, the federal networks agency BNetzA revealed last week.

"The result confirms experiences from the previous auction that almost all bids won were from citizen energy cooperatives," says BNetzA president Jochen Hohmann.

"Those bidders now have four-and-a half-years to complete their projects and, in our view, have implied a positive further development of turbine technologies and falling prices in their bids."

The lowest winning bid actually came in at €22/MWh, the agency said.

The auction was several times oversubscribed, with 210 bids for a volume of 2.59GW, pointing to a ravenous appetite for the construction of new wind projects in Germany.

German wind power association BWE said the outcome was good news for politics and consumers, but warned that tendering rules favouring community power put greater pressure on the entire supply chain.

Community groups do not need to provide a noise emission permit when bidding, and have two years more than commercial developers to switch on projects.

"There is a great danger that there will be an interruption of the wind energy expansion that will affect manufacturers, suppliers, logistics and planners equally hard and threatens to massively slow down the *Energiewende* [energy transition]," said BWE president Hermann Albers.

> "There is a great danger that there will be an interruption of the wind energy expansion

Reacting to industry complaints after community groups won most of the volume in the first two auctioning rounds this year, Germany's outgoing government decided that grassroots bidders in the first of four onshore auctions next year would also need to provide a noise permit. But Berlin has not decided what to do beyond then, and Chancellor Angela Merkel currently only presides over a caretaker government after talks collapsed on forming a conservative-liberal-green coalition following inconclusive elections in September.

"The termination of exploratory coalition talks for a new federal government paralyses politics. The acknowledged and urgently necessary correction of the EEG [Renewable Energies Act] must nevertheless not be delayed," Albers said, calling for a general requirement for a noise permit also after the first auctions in 2018.

Germany plans to tender 2.8GW in onshore volume in both 2018 and 2019, and 2.9GW in the years after that.

Due to a reference yield model that favours strong wind locations, bids from densely populated, heavily industrialised southern Germany were unsuccessful in the auction, BWE pointed out, even though the region is hungry for power.

Photograph | Getty

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The Breakbulk & Offshore Wind Terminal at Vlissingen

MHI Vestas inks tenancy for Dutch turbine assembly site

MHI Vestas has signed up to a long-term tenancy on a site at the Dutch port of Vlissingen, which it will use as a staging post for assembly and ship-out of its V164 turbines, with first use next year for Belgium's 370MW Norther project, *Recharge* can reveal.

The deal — the value of which was not disclosed — will see the Japanese-Danish turbine maker tailor a 20-hectare location on the grounds of the Breakbulk & Offshore Wind (BOW) Terminal to accommodate nacelles, blades and tower parts coming in from its factories in Denmark and the UK, as well as from its wider supply chain.

The site has already seen use by the European offshore wind industry as a marshalling yard for monopiles and transition pieces. But the assembly of components for Norther's 8MW turbines, which is slated to take place between September 2018 and March 2019, will be its first employment for "full units".

"This site has already been used for similar industrial projects so it is prepared in a way," Bo Bjerregaard, MHI Vestas' director of global pre-assembly & logistics, tells *Recharge*. "But, of course, to accommodate our [V164] components we will have to do our own construction work on site to make it sure it can fulfil our load specifications."

With offshore construction costs accounting for a sizeable slice of total capital spend on a project, developers and OEMs are looking to do as much assembly quayside as possible to carve out deeper savings, notes Bjerregaard.

"All the components will come onto the site and be readied for installation [by an offshore construction vessel] in a plug-and-play, five-step process, to minimise the time spent offshore.

"We want to make [manufacturing through to installation of turbines] as lean a process as possible."

Development of the Vlissingen site will benefit from the logistics learnings gleaned from experience at MHI Vestas' two industrial facilities in Denmark — the Esbjerg pre-assembly site and Lindø nacelle factory — as well as its UK blade plant on the Isle of Wight.

"We have been running these sites for several years, and are learning how efficiencies can be improved so that we avoid any unnecessary cost impacts," says Bjerregaard.

"We are regularly having meetings and workshops with everyone from our manufacturing and technology teams to our offshore installation department to find ways of optimising the value chain."

Investment by MHI Vestas will translate into 50 local jobs, with the hiring ramp-up beginning next autumn.

Vlissingen has become a strategic location for Dutch offshore wind power projects, with the government having opened three major zones in the North Sea — Borssele, Hollandse Kust Zuid and Hollandse Kust Noord — to development between 2015 and 2021.

> "Establishing this facility further demonstrates our long-term commitment to Dutch offshore wind

Ludolf Reijntjes, managing director at the BOW Terminal, says: "With our dedicated facilities close to the North Sea, virtually no tidal restrictions, and with excellent hinterland connections, we are positioned extremely well for [these] offshore wind projects. This new contract will mean a lot to BOW, Vlissingen and surrounding communities for years to come."

Bjerregaard adds: "Our experience in the Dutch offshore wind market dates back to 2007, when the first offshore wind power plant was installed. Establishing this facility further demonstrates our long-term commitment to the Dutch offshore wind market and will expand our expertise in the region."

The Vlissingen deal is the latest in a round of industrial expansion plans announced by MHI Vestas, which include a state-of-the-art power converter module facility in Denmark, a test bench for its 9.5 MW turbine in the US, and a blade painting and logistics factory in the UK.

Photograph | MHI Vestas

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Steen Broust Nielsen
Partner
MAKE

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Greensolver creating value

Key Topics for 2018

Major component maintenance strategies – Discover how to improve your major component investigation methodologies to reduce multiple replacement OpEx cost.

Contract Optimization – Learn how you can implement a hybrid approach contracting and update your contract benchmarking to drive a more productive service relationship across your portfolio.

Lifetime Assessment and Certification – Hear about the latest advances in wind turbine assessment and certification that will enable you to make informed OpEx decisions regarding your portfolio as they age, Globally.

Enhanced Asset Management Strategies – With margins being increasingly squeezed, listen to mature asset management approaches that will enable your wind farms to realise their full potential.

Data exploitation – In the age of Big Data, learn how to effectively gather, analyze and use the information coming from your assets that will unlock previously hidden savings and boost overall portfolio profitability.

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For details on the event contact organizer Jonathan Witherpoon at: **jonathan@neweneryupdate.com +44 (0)207 375 7560**

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HIGHLIGHTS OF THE DAY

Tuesday 28 November 2017 #WindEurope2017

CONFERENCE PROGRAMME

Ask at the registration area how to buy a session ticket!

OPENING SESSION (09:30 - 11:00)

ROOM: AUDITORIUM (This session only is open to all participants)

Introduction

Ivor Catto
CEO, RES Ltd
Chairman, WindEurope

Hans Timmers
CEO, NWEA

Speakers

Žygimantas Vaičiūnas
Minister for Energy, Lithuania

Ando Leppiman
Deputy Secretary of State for Energy, Estonia

Panel Discussion

Hans-Dieter Kettwig
Managing Director, ENERCON

Anders Runevad
CEO, Vestas Wind Systems

Markus Tacke
CEO, Siemens Gamesa Renewable Energy

Gunnar Groebler
Senior Vice-President, Vattenfall

THE OUTLOOK FOR WIND IN EUROPE AND OUR FUTURE BUSINESS MODELS (11:45 - 13:00)

ROOM: AUDITORIUM

Session chair

Dagmara Koska
Member of Cabinet of Vice-President Maroš Šefčovič, European Commission

Panel Discussion

Gerassimos Thomas
Deputy Director General for energy, European Commission

Luca Bettonte
CEO, ERG Spa

Georgios Papadimitriou
Head Renewable Energies for Rest of Europe and North Africa, ENEL Green Power

João Manso Neto
CEO, EDPR

Pete McCabe
President and CEO Onshore Wind, GE Renewable Energy

Ditlev Engel
CEO, DNV GL - Energy

14:30 - 15:45

North Seas Energy Forum - plenary session	Technology across the wind value chain
ROOM: G103	*ROOM: EMERALD*

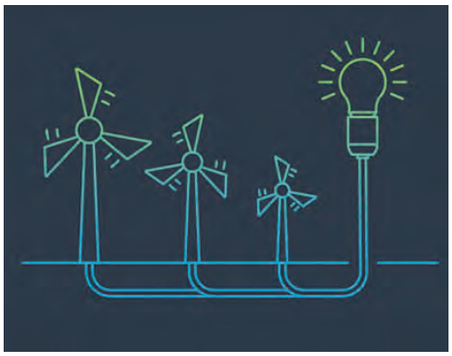
16:30 - 17:45

Improved meteorology applications for wind	Delivering >14 MW offshore turbines by 2023: can we do it?	Making the wind supply chain more sustainable, efficient and resilient	Supporting electricity grids as wind power reaches new heights
ROOM: G103	*ROOM: EMERALD*	*ROOM: G105*	*ROOM: G107*

See the full programme online at: windeurope.org/confex2017/conference/programme

SIDE EVENTS

For information on how to register for side events visit:
windeurope.org/confex2017/networking/#side-events



HACK THE WIND 2017
When: 28 – 29 November 2017
Where: Onyx Lounge – Ground floor

BIG DATA IN THE H2020 SOCIETAL CHALLENGE SECURE, CLEAN AND EFFICIENT ENERGY: 3RD WORKSHOP
When: 28 November 2017, 13:00 – 17:00
Where: D203, Elicium 2nd floor

GWO TRAINING FOR SAFETY
When: 28 November 2017, 14:00 – 18:00
Where: Amtrium 1 – ground floor

DUTCH VILLAGE
When: 28 – 30 November 2017
Where: Find us in Hall 2

GLOBAL WIND ATLAS 2.0
When: 28 November 2017, 16:00 – 17:30
Where: D403, Elicium – 4th floor

MAKING INNOVATION HAPPEN!
When: 28 November 2017, 15:45 – 16:15
Where: WindEurope Stand (2C32),
EU funded projects corner

OPENING RECEPTION
When: 28 November 2017, 17:30 – 19:30
Where: Siemens Gamesa Renewable Energy Stand, Hall 1, 1D44

SIEMENS Gamesa
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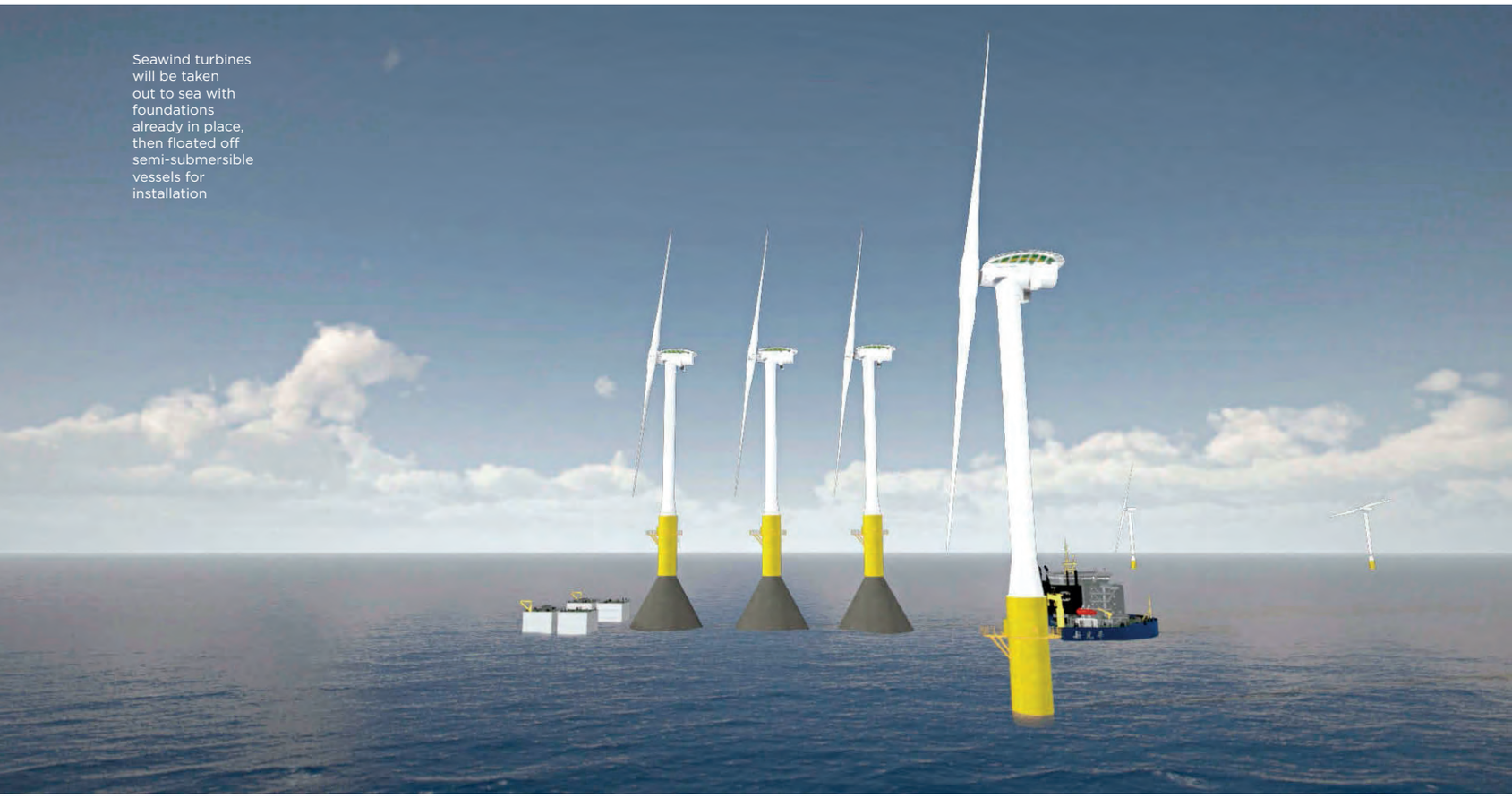
Join us for drinks and snacks at the end of the first day and network with exhibitors and conference delegates.
Open to all delegates who have a valid pass to the event on Tuesday.

Visit the WindEurope stand (2C32) to find out more about WindEurope's future events and how to become a member.

Wind EUROPE



Seawind turbines will be taken out to sea with foundations already in place, then floated off semi-submersible vessels for installation

Photography | Seawind

Two-blade pioneer lands Greek islands deal

DARIUS SNIECKUS

Two-bladed offshore wind turbine pioneer Seawind has landed a breakout deal with Greek renewables developer WRE Hellas to build arrays of bottom-fixed offshore and floating wind farms to power islands in the Aegean Sea, *Recharge* can reveal.

The project, expected to lead to developments of 50-100MW, is being advanced under the European Union's Clean Energy for EU Islands Programme, which has the long-term target of switching over the bloc's 2,000-plus inhabited islands to renewable energy.

"The development of economic, clean energy sources is of vital importance for many small Greek islands that rely heavily on tourism," says WRE Hellas managing director Victoria Alexandratou. "Seawind's technology will enable us to meet this objective at a cost comparable to the wholesale price on the mainland and independent from government subsidies."

Seawind chief executive Martin Jakubowski adds: "We look forward to showcasing how 100% green energy systems will work on Greek islands and other smaller economies."

The innovative Seawind turbine design features a twin-blade rotor fitted to a hybrid mechanical-elastomeric hinge that is engineered to filter out wind-driven gyroscopic loads and so cushion the impact on the machine's two-stage geared drivetrain. Power control is finessed by yawing rather than by adjusting blade pitch.

A 6.2MW prototype with a 126-metre-diameter rotor and concrete gravity base (CGB) foundation is being developed for installation as a flagship demonstration project off Norway slated to start next year. And the design is about to be "implemented" for a 10.4MW model, flying a 210-metre rotor, which is calculated able to deliver a levelised cost of energy under $30/MWh.

A unit of this scale would also make more of the relatively benign offshore wind regime, says Jakubowski. "The Mediterranean Sea does not have the winds of the North Sea but the Seawind 10.4 will produce almost 45 million kWh in winds of about 8.5 metres per second with medium wind speeds as in the Mediterranean Sea," he notes.

Martin Jakubowski

Both CGB and floating concepts, being developed with Norwegian North Sea engineering outfit Olav Olsen, are designed as "completely assembled offshore wind energy units" launched at site by a semi-submersible vessel rather than built by a crane jack-up. All in-field O&M will be carried out onboard — with access via helicopter or supply boat.

"Our approach to assemble the entire system onshore and launch at sea by semi-submersible vessels is the key to bringing down the cost of offshore wind and being able to install one or 100 turbines in a very economical way," says Jakubowski.

"Seawind's complete offshore units always have concrete support structures, bottom fixed or floating," he adds. "We assisted the recent basin testing of Olav Olsen's floating foundation, which confirmed the high degree of stability of this concrete semi-floater design even under very significant waves."

Along with the Norwegian pilot and Greek island-array project, Seawind is also in discussions to progress developments using its turbine off countries including India, China and the US.

Wind turbines at the existing Egmond aan Zee wind farm off the Netherlands

Dutch consider sale of offshore wind concessions from 2018

BERND RADOWITZ

In a step beyond zero-subsidy bidding, the Dutch government is considering allowing developers to buy concessions for offshore wind acreage from next year onwards, *Recharge* has learned.

The Hague is "considering amending the legislation to allow [a bidder] not only to bid on a particular tender and then apply for subsidy, but actually rather pay for the concession," a Netherlands Enterprise Agency (RVO) representative said at an ABN Amro offshore wind conference this month, according to Wouter Hertzberger, partner at global law firm Norton Rose Fulbright.

"So, going one step further than a zero-subsidy bid, you would be able to say 'I'm not applying for a subsidy, but I am willing to pay for that concession for the next 15 years,'" Hertzberger told *Recharge*. RVO did not immediately reply when asked for comment.

A prerequisite for the legislative change would be that bidders come forward in a zero-subsidy bidding round in December for the 700MW Hollandse Kust South 1&2 wind zone.

> Going one step further than a zero-subsidy bid, you would say 'I am willing to pay for that concession'

The Dutch government earlier this year decided to try out an auction for Hollandse Kust 1&2 without offering support, following the game-changing result of Germany's first offshore wind tender in April, in which 1.38GW of offshore acreage was allocated to zero-subsidy bids.

At the ABN Amro offshore wind conference, in an ad-hoc poll, around half of the more than 100 participants did expect that there will be bids in the December zero-subsidy auction.

But while the Dutch government has pre-developed the Hollandse Kust Zuid area to facilitate bids, zero-subsidy offers — and even more so for paid-for offshore acreage — could be more difficult to attract than in the German case.

The Dutch wind farms must be commissioned within four years of this year's tender, while the German arrays only need to come on line in 2024-25, when much larger offshore turbines are expected to be on the market to push down the price of power generation, and electricity prices are expected to be higher.

Photograph | Bloomberg/Getty

AN INVESTMENT IN KNOWLEDGE ALWAYS PAYS THE BEST INTEREST

Benjamin Franklin

RECHARGE has been reporting from the front lines of the renewables industry on five continents since late-2008 led by an editorial mission to bring depth and dimension to coverage of the news that matters, with the accent on analysis, opinion and relevant in-depth features.

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Vestas to set up Russian factories

BERND RADOWITZ

Danish wind OEM Vestas will establish three factories in Russia to help fulfil local-content requirements for the 1GW onshore pipeline won by the Fortum-Rusnano consortium this summer.

This includes setting up a blade manufacturing facility in the region of Ulyanovsk that will be majority-owned by Vestas, as well as a nacelle assembly plant in the Nizhny Novgorod region and a tower factory in the Rostov region that will be operated by local partners, but produce Vestas products.

"As the global leader in wind energy, it is an expression of our commitment to Russia that Vestas, together with [Finland's] Fortum Energy, takes a strong role in helping the world's fourth-largest electricity market towards a more sustainable energy mix,"

A view of the city of Nizhny Novgorod

Photograph | A Savin/Wikimedia

says Nils de Baar, president of Vestas Central Europe.

"Vestas will deliver its most advanced technology through our 4MW platform as well as market-leading cost of energy and local manufacturing and supply-chain expertise that will provide affordable, sustainable energy and create long-term jobs across different Russian regions."

Vestas also confirmed a lead-off 50MW order from its 1GW framework agreement with Fortum for 14 V126-3.6MW turbines for an undisclosed Russian project.

North Sea high on EU power-link menu

ANDREW LEE

The European Commission (EC) pledged to advance plans for integrated offshore wind in the North Sea, among a plethora of projects deemed priorities for the EU's push for energy union.

The EC's latest statement on strengthening the bloc's energy networks says enhanced interconnection of offshore wind will move ahead in 2018 with the planned adoption of a "North Sea infrastructure/offshore grid action plan", with a "high level" political meeting slated for May or June "to reinforce political commitment in a context of rapidly decreasing cost of offshore wind".

North Sea co-operation is on a list of 173 "projects of common interest" that the EU will throw its weight behind.

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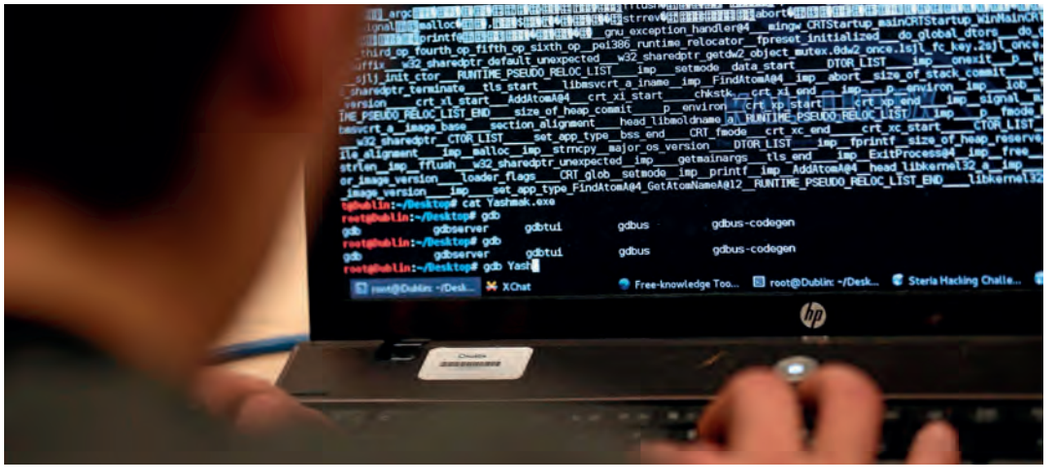

Photograph | AFP/Getty

A "hackathon" to brainstorm new wind power technologies will be held for the first time at WindEurope 2017, under a deal between the industry advocacy body and European sustainable energy innovation outfit InnoEnergy.

Kicking off today, the "Hack the Wind" event — a 48-hour technology development sprint by teams for a share of a €20,000 ($23,700) prize — will challenge competitors with solving two as-yet-undisclosed "pressing challenges" facing the wind power industry set by Portuguese renewables company EDPR.

The teams will develop their ideas using EnOS, a smart, scaleable open platform hatched by China's Envision Energy for Internet of Things applications.

"Digitalisation is a change-maker in the energy business and also in the wind energy sector," states InnoEnergy chief executive Diego Pavía.

"In times of industry changes, the need for fresh ideas is paramount to strengthen competitiveness and resilience. Hack the Wind's aim is precisely that: connecting bright people from different backgrounds to challenge the status quo.

"With Hack the Wind, we are going one step further by fostering new innovations, which will ideally lead to the creation of new innovative start-ups."

Malgosia Bartosik, WindEurope deputy chief executive, notes that the event has been organised in the spirit of generating "new ideas that can lead to meaningful change for the industry".

"We are excited to work with InnoEnergy on our first at-event hackathon to drive innovation and new partnerships in the space," she says.

Winners of the hackathon will be announced in the Thursday issue of the *Recharge* Dailies.

CROSSWINDS IN EUROPE

Wind is set to become the cheapest source of power in Europe and could meet 30% of demand by 2030 — yet question marks hang over the sector's post-2020 prospects, writes **Darius Snieckus**

On 28 October, as autumn storms blustered across Europe, wind energy shouldered 25% of electricity demand on the continent for the first time. Now the lowest-cost new power in the region, output from wind could ramp up to meet 16.5% of electricity consumption by the end of the decade, when it is expected to overtake hydro as the EU28's largest power supply. By 2030, it could be accounting for 30%.

But clouds have gathered over the market's mid-term forecasts. According to industry body WindEurope's number-crunching, Denmark will be lighting and heating half its homes and businesses with wind power by 2020, Germany 30%, and Ireland, Portugal, Spain and the UK over 20%. Yet a number of laggard states — including Bulgaria, the Czech Republic, Cyprus, Hungary, Latvia and Romania, which have not installed a single megawatt since 2016 — are muddying the wider outlook.

Policy uncertainty in Brussels and a lack of ambition among many EU member states to enshrine a post-2020 climate and energy framework are adding to the burden on an industry that could be pulling in €250bn ($291bn) in investment inside ten years.

"We share the view that visibility on European and national renewables targets towards 2025 and 2030 is key to continue the success story of renewable energy in Europe," states Gunnar Groebler, head of utility Vattenfall's wind-power division. "Only firm mid- to long-term targets will provide market and industry certainty, attract the funds needed and trigger R&D activities that will further help in reducing cost."

> Only firm targets will provide market certainty and attract the funds needed to trigger the R&D activities that will further cut costs

The finalised EU's Clean Energy Package, currently working its way through the bloc's legislative machinery, will be central to the fortunes of wind and other renewables, as WindEurope chief executive Giles Dickson said at the recent launch of the association's *Scenarios for 2030* report.

"The industry needs binding and ambitious National Energy & Climate Action Plans that provide clarity on post-2020 volumes, which will allow cost reductions to continue. The outlook from 2020 is uncertain. This requires a good outcome on the EU Clean Energy Package."

OEMs such as Siemens Gamesa, Vestas and Enercon, as developers of the technology at the heart of the industry, will be on the frontlines of this push for further cost-reduction.

"We have already started to adjust our manufacturing footprint [for] future demand in an increasingly cost-driven market," says Siemens Gamesa chief executive Markus Tacke.

"We still need strong political support in European markets, but we will definitely use the coming years to drive innovation to reach a cost level which will make wind one of the most efficient energy sources by the next decade."

For Anders Runevad, chief executive of Vestas, the way forward "lies in technology and redesigned power markets".

"The need to modernise ageing

From left: Lightning strikes behind a wind farm in Goerlitz, Germany, close to the Polish border; Vestas boss Anders Runevad; Siemens Gamesa chief executive Markus Tacke

onshore turbines, the decarbonisation of heating and transport driving increased electricity demand, and technological innovations will all impact the amount of wind in the energy mix."

Given that Europe counted on three countries — Germany, France and the UK — for 82% of the new build-out of wind in the first half of the year, new markets, including a rebounding Spain, are key to the industry's ongoing expansion, especially when 15 of 28 EU member states did not erect a single turbine last year.

Southeast Europe

Southeast Europe could supercharge the wider regional market, with the International Renewable Energy Agency (Irena) earlier this year calculating that Albania, Bosnia, Croatia, Montenegro, Moldova, Romania and Serbia could install a combined 127GW of wind "cost-competitively today".

"In general, scale is crucial for further cost reductions. Therefore, we welcome [market] growth across Europe," says Groebler. "Nevertheless, it also needs backing and stability from the regulatory side."

Tacke shares Irena's "optimistic assessment" of southeast European wind, but cautions that from "past experience on projects in the region", that the national markets there "did not have many similarities with one another since the energy systems vary significantly in terms of energy resources and ownership structure of the energy infrastructure". This means different sales strategies would be needed in each country.

There is also the concern, as expressed by Enercon chief executive Hans-Dieter Kettwig, that "inadequate commitment by politicians to removing regulatory obstacles and addressing legal uncertainties for investors" continues to stand in the way of the region's potential.

"The EU framework conditions after 2020 will have a determining influence on whether onshore wind in the southeast Europe is unlocked," he states. "A clear commitment to expansion of renewables should be expressed in the Clean Energy Package negotiations."

Still, as Runevad distills it: "Wind conditions are good, energy costs are low [in southeast Europe]. We are convinced it will be tapped to an ever-larger extent [from] 2020-30."

Repowering/life extension

In the fast-maturing "open market" of the EU28, repowering — and life extension schemes — will increasingly be the main means of more economic harvesting of the richest winds onshore, by most analyst calculations a 70GW-plus market through to 2030.

"We have repowered a number of sites and expect this segment to grow over the next years since an increasing number of smaller turbines are reaching end of lifetime," says Tacke. "But for turbines above 1.8-2MW it is also an interesting option to extend their lifetime and improve yield by upgrading with digital technology, controller updates and retrofitting aerodynamics."

Groebler sees some of the gloss coming off the "growth potential" of the repowering market in the near-term due to it having to "compete on the same terms" with greenfield projects. "We don't expect a huge share to be invested specifically in repowering within the next years," he says.

Offshore v onshore

There is also the rising challenge of a booming offshore market for the wider European wind sector to balance as it evolves.

Onshore machines, though cleverly stretching up to ever bigger rotors, may lose out in per-megawatt price to the coming range of 10MW-plus offshore turbines, and eventually make offshore wind cheaper than that on land.

Tacke, running a company with both on- and offshore models, understandably reckons the industry should campaign on two fronts — building in sparsely populated areas

Photography | Photothek/Getty | Vestas | Siemens Gamesa

From left: Vattenfall's Gunnar Groebler, Enercon boss Hans-Dieter Kettwig and WindEurope chief executive Giles Dickson

able to accommodate ever larger onshore turbines, while ploughing ahead with supersize offshore models.

"We will have a new generation of offshore wind turbines allowing for cost-competitive offshore wind by the middle of next decade [and] we will also have markets for larger onshore turbines which will reach grid parity even earlier."

Groebler adds: "In principle, offshore certainly has more cost-reduction potential given the greater possibilities on increased turbine ratings — [it should] become cost-competitive with onshore within five years.

"But limiting cost-competitiveness only to the specific turbine price is too narrow. High development expenditures — offshore surveys, offshore transmission systems — counterbalance the existing advantage of the already higher offshore turbine ratings."

Kettwig — whose company does not produce offshore turbines — echoes this thinking.

"We do not consider the mere size of the turbine and the maximum nominal power to be the crucial factors — far more important that a turbine represents the lowest price per kWh," he says. "That's why we still see significant potential to make onshore [designs] even more efficient and increase yield even further using technological innovations."

Corporate PPAs

Much as the landscape for wind power production in Europe is in rapid evolution, so too are its buyers. The growing trend of corporate power-purchase agreement (PPAs) between renewable energy producers and major corporations — such as Vattenfall's recent ten-year deal to power Microsoft's international data-centre operations in the Netherlands via the 295MW Wieringermeer project — is one of the energy transition's surprise packages. The market in Europe tripled in 2016 alone, to 1.6GW.

> Offshore has more cost-reduction potential given the greater possibilities on increased turbine ratings

"Since renewables are the cheapest source of electricity, direct sourcing of renewable power is competitive with purchasing from the electricity market. This secures long-term prices for off-takers. It is enabling them to plan production and expansion and gives developers the revenue security needed to organise financing," says Groebler.

For Runevad — as head of a company that sources 100% of its energy from renewables — the potential in Europe "remains largely untapped" due to out-of-date regional market practices where non-utilities cannot buy electricity directly from generators.

"An EU-wide framework explicitly making corporate PPAs legal in all EU member states would help corporate PPAs take off and play a key role in driving new investments in European wind," he states.

According to Siemens Gamesa, European corporate PPAs could grow to 7GW by 2020, "more than 5GW of which would be wind", says Tacke.

This is a pivotal time for the European wind industry, says Dickson — and keeping up momentum to 2030 is the sector's "most daunting challenge".

The range and innovativeness of the industry's responses to date is reason to take courage, but policymakers must step up too, he says.

"Greater certainty depends on long-term revenue stability [so we need to see] significant progress on the system integration of variable renewables including build-out of the grid and interconnectors and clear policy commitments on electrification." R

Gunnar Groebler, Anders Runevad, Markus Tacke and Hans-Dieter Kettwig are Event Ambassadors at this year's WindEurope Conference & Exhibition

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