

Taller turbines and tougher trading

The industry's biggest merger, the first serious floating offshore project, the rise in power ratings and hub heights... David Weston and Craig Richard pick out the highlights from *Windpower Monthly's* coverage of 2017

January

● **Investment in offshore wind** reaches a new high, according to Bloomberg New Energy Finance (BNEF), at \$29.9 billion in 2016, 40% up on the previous year. But total investment in clean energy falls 18% year-on-year to \$287.5 billion. ● **MHI Vestas unveils a 9MW** evolution of its V164 offshore turbine. It would grow again within a few months. ● The UK Court of Appeal **dismisses Wobben Properties' claim** that Siemens infringed a storm-control technology patent developed for Enercon.

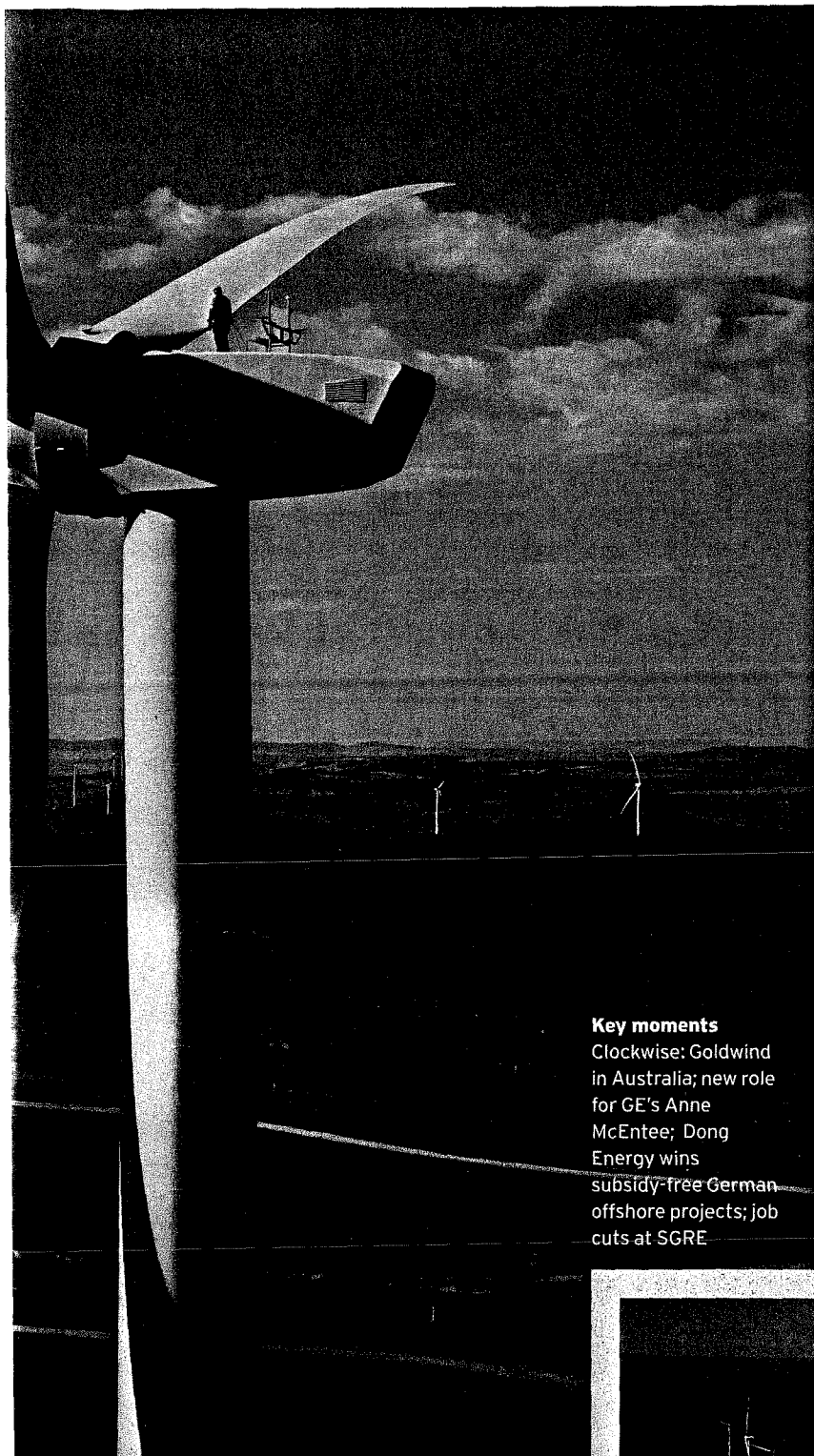
February

● Nordex takes control of Danish blade designer and manufacturer **SSP Technology**, putting the acquisition to good use with the announcement of a 4.0-4.5MW turbine with a 149-metre rotor diameter later in the year. ● Saudi Arabia announces a tender for 400MW of wind and 300MW of solar PV. ● FTI Consulting releases preliminary findings of its *Global Wind Market Upgrade 2016*, showing **Vestas as the world's top OEM**. Previous leader, Goldwind drops to third behind GE as a result of

the slowing Chinese market. ● Siemens Wind Power confirms it will **close its blade factory** in Engesvang, west Denmark, due to "significant changes in the global wind-power market". The 430 jobs lost are on top of the 150 to be cut from another of its blade plants in Aalborg in the north of the country. ● GE Renewable Energy appoints Anne McEntee to **lead its servicing business**, while Peter McCabe takes on her old role as onshore wind chief executive.

March

● Vestas installs a new **tower design using support cables** to spread the increased load of taller turbines. The concept enables turbines to be installed on narrower towers, cutting manufacturing and transport



Key moments

Clockwise: Goldwind in Australia; new role for GE's Anne McEntee; Dong Energy wins subsidy-free German offshore projects; job cuts at SGRE

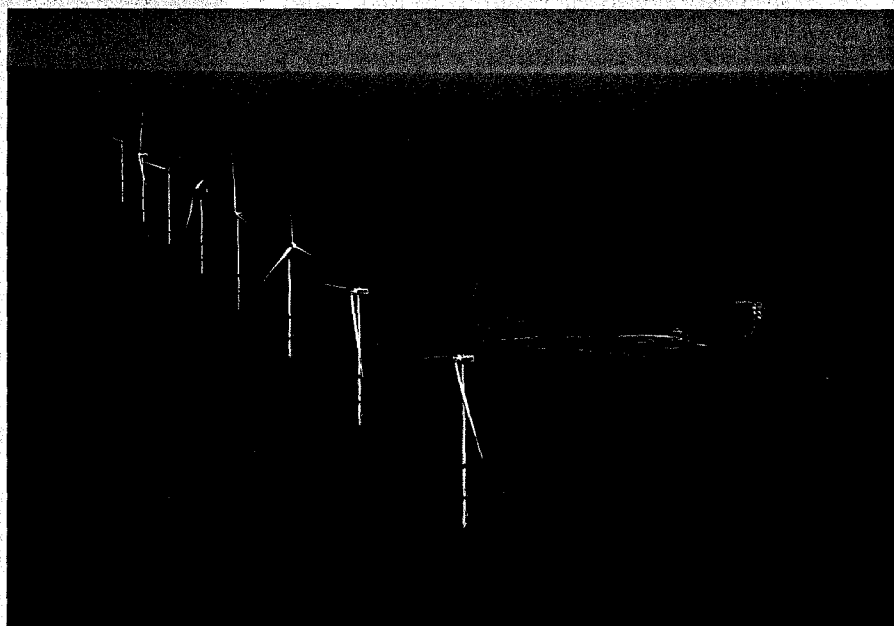
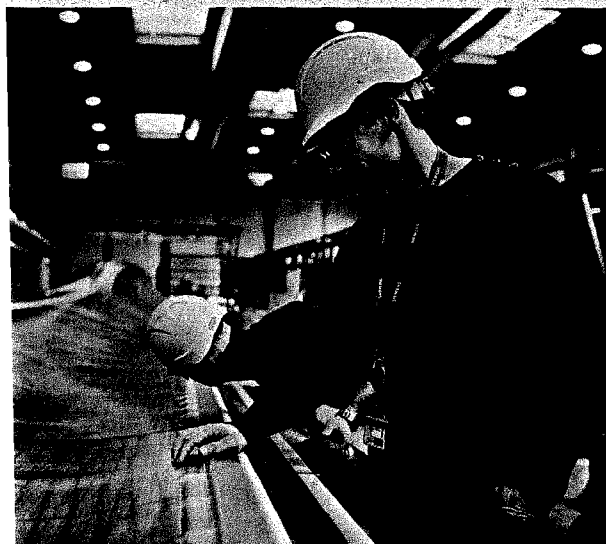
costs. ● Siemens installs a prototype of its new **low-wind SWT-3.15-142** turbine at Drantum, central Denmark. It will be available with hub heights of up to 165 metres for a tip height of around 234 metres. ● Nordex CEO **Lars Bondo Krogsgaard resigns** after the company reduced its forecast for the 2017 and 2018 financial years. Former Acciona Wind Power chief Jose Luis Blanco steps in. ● **Senvion cuts 780 jobs** with production sites at Trampe and Husum in Germany taking most of the losses. The company predicts the global move to competitive tendering will create short-term pricing pressures as it announces a two-year "transition" to adjust to market demands.

April

● The long-anticipated **merger of Siemens and Gamesa** comes into effect, creating a company with 75GW of installed wind capacity across 90 countries, and 27,000 employees. Combined annual revenue stands at €11 billion, and the company has an order backlog worth €21 billion. ● *Windpower Monthly* gets exclusive access to two new product series. **Enercon's 4.2MW EP4 platform**, the first of several 4MW-plus onshore turbines now on the market, offers an industry-first 30-year design life. **Vestas upgrades** its best-selling **V110-2MW** turbine with rotor diameters of 116 and 120 metres to boost annual energy production. ● Developers Dong Energy and EnBW are awarded licences for four projects in Germany's first competitive auction, with three sites to be built **without subsidy**. Both companies have operating offshore sites in the country already.

May

● Senvion lets slip at the AWEA Windpower 2017 event in California that it is working towards a **10MW-plus offshore wind turbine**. No specifics were forthcoming in London, but the Senvion-led Realcoe collaboration



would apply for EU funding to speed up development in November. ● Wind projects are allocated 2,979MW of the 3GW available in **Spain's second renewables auction**, underlining renewed interest in the country's wind market. All winning bids are made with "full discount" — meaning operators accept zero subsidy and will receive only the wholesale price for electricity generated. ● **Goldwind acquires** the up-to-530MW Stockyard Hill project in Victoria, Australia, from Origin Energy, and agrees to sell the power back to the utility. The PPA is believed to be the largest wind deal to date in Australia.

June

● Vestas shifts its 3MW platform into the **rapidly growing 4MW class**, unveiling three models with a power rating of up to 4.2MW. The low-wind V150 boasts the largest rotor diameter yet seen onshore, while the high-wind V117 takes the turbine into typhoon territory for the first time. ● MHI Vestas unveils an upgrade to its V164 offshore turbine, taking **rated capacity up to 9.5MW**. It is later specified for the UK's 950MW Moray East and 860MW Triton Knoll projects in the North Sea. ● In a first step to **align Adwen with its new parent** company, Siemens Gamesa Renewable Energy (SGRE), two separate legal entities are to be created: Adwen Operations, which will focus on four German projects equipped with its 5MW (formerly Areva) turbines, and French Pipeline, to develop 1.5GW of French offshore sites up to the start of construction. Three months later SGRE stops production plan for Adwen's 8MW offshore turbine. ● Vestas is announced as preferred turbine **supplier for 1GW** of projects won by developer Fortum in the Russian tender. Fortum will develop its capacity alongside Russian energy company Rusnano, spread across 26 projects between 2018 and 2022.

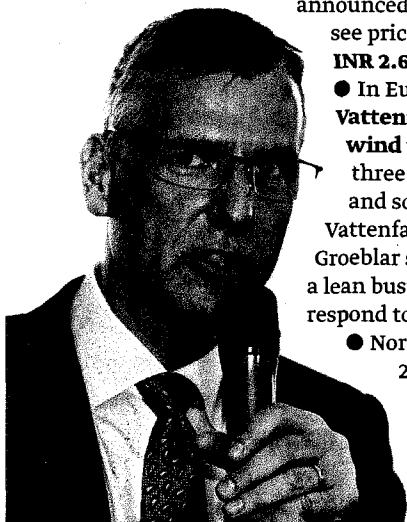
July

● Enercon is set to **refurbish up to 1,200 turbines** in India, following the conclusion of a decade-long legal dispute with former joint venture Wind World India. The firm says some 860MW of its turbines could be re-activated and updated after its ten-year absence from the world's fourth largest market, where Enercon has roughly 6,700 turbines installed. ● Elsewhere in India, the country's 1GW power auction receives 2.8GW of bids, following the success of its first auction earlier in the year. The results,

announced later in October, will see prices fall to a **new low of INR 2.64/kWh (\$0.04/kWh)**.

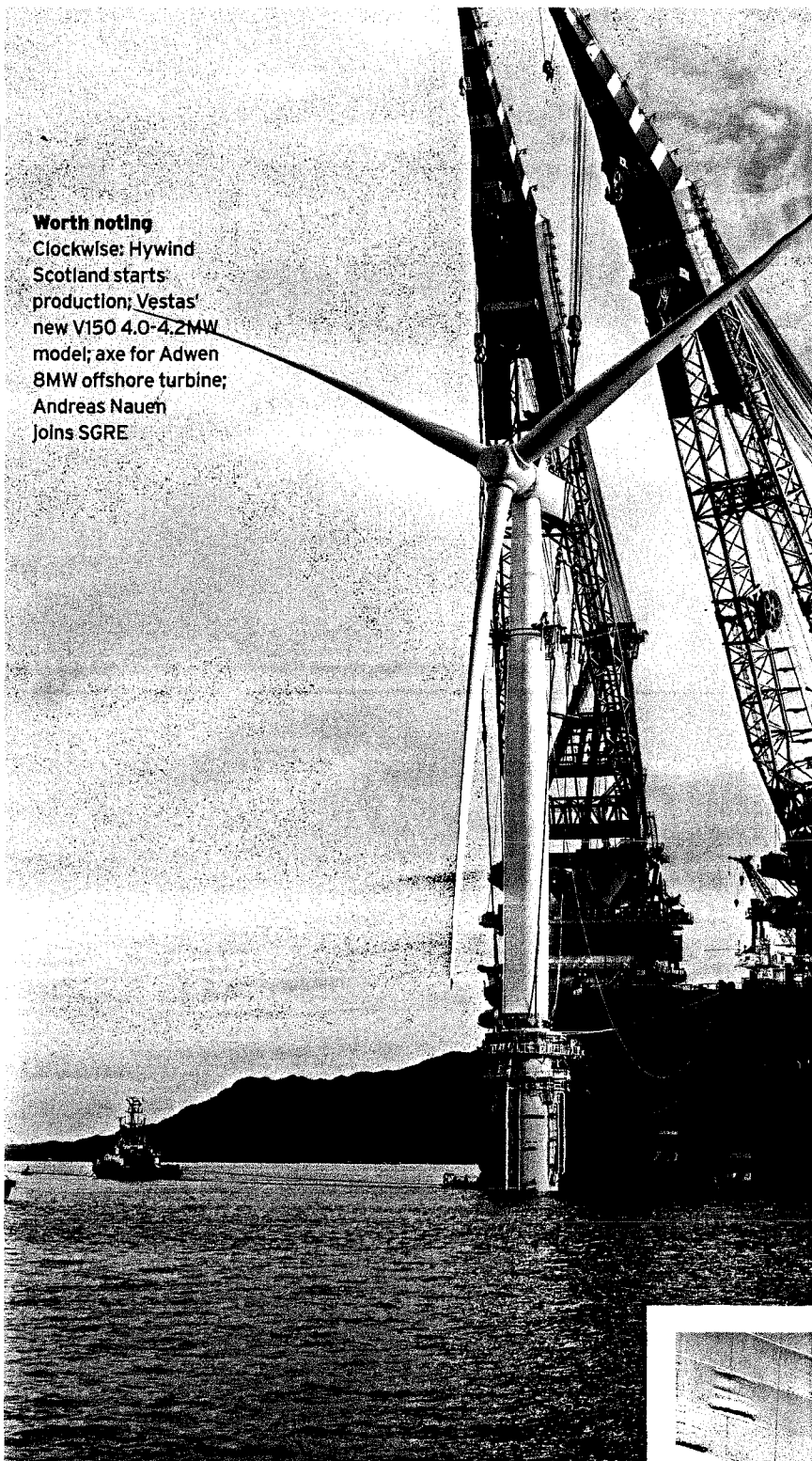
● In Europe, developer **Vattenfall reshuffles its wind unit**, splitting it in three — onshore, offshore, and solar PV with storage. Vattenfall Wind CEO Gunnar Groebler says the move "creates a lean business model ... that can respond to different markets".

● Nordex's record-breaking 230-metre high turbine in south-west



Worth noting

Clockwise: Hywind Scotland starts production; Vestas' new V150 4.0-4.2MW model; axe for Adwen 8MW offshore turbine; Andreas Nauen joins SGRE



Germany produces more than 9GWh of electricity in its first year of operation.

August

In a *Windpower Monthly* exclusive, Enercon unveils a **new modular approach** it is taking with its 3MW platform. The move is in response to the shift to auction-based systems around the world forcing margins to be compressed, meaning Enercon was losing out to cheaper rivals. All future Enercon turbines will be based on the new design approach and will meet IEC wind class demands exactly, rather than exceed them, the manufacturer says. ● Rival manufacturer SGRE announces it is making up to **600 further job cuts** at its

blade plant in Aalborg. The move comes just eight months after an initial 580 jobs were cut, prior to the merger. ● GE Renewable Energy files a dispute in California claiming market leader Vestas was in breach of its **zero-voltage ride-through (ZVRT) technology patent**. ● MHI Vestas launches an investigation after its 9.5MW prototype in Osterild, Denmark, **catches fire**. The subsequent examination finds a component “damaged during installation” was the cause. MHI Vestas says the part is “unique to a prototype environment” and that the rollout of the turbine will not be affected. ● Gamesa also suffers a fire at a 13-year-old turbine in Japan. Several local news outlets show a **burned-out nacelle**.

September

● GE Renewable Energy continues the year’s big technological trend, with the launch of a new 4.8MW onshore turbine for low- to medium-wind markets like Germany, the Netherlands, Turkey, Chile and Australia.



The new model features a 158-metre rotor and will offer the industry’s **largest annual energy production**, GE claims. ● Vestas confirms it is **working with Elon Musk’s Tesla** on energy storage solutions. Vestas is looking to increase its involvement in integrating wind and storage solutions and has been working on a number of small-scale projects over recent years. ● The year is shaping up to be a **difficult one for the leading manufacturers**. Nordex announces a €45 million cost-cutting programme, which would also see up to 500 jobs lost, mostly in Germany. ● Vestas, meanwhile, signs a deal to set up a **manufacturing hub in Russia**, on the back of potentially winning a 1GW deal with Finnish developer Fortum and its joint venture partner Rusnano, which won the majority of capacity up for grabs in June’s 1.65GW tender.

October

● Andreas Nauen is back as a leading light at a major manufacturer. The former Senvion CEO is appointed to lead SGRE’s offshore division, following the **departure of Michael Hannibal**. In a small reshuffle at SGRE, driven by poor financial forecasts, Miguel Angel Lopez is appointed as chief financial officer, replacing Andrew Hall, and Jürgen Bartl replaces Jose Antonio Cortajarena as general secretary. ● Max Bögl breaks its own record for the **tallest onshore turbine** in the world, reaching a tip height of 246.5 metres. The 3.4MW GE turbine, installed near Stuttgart, south-west Germany, incorporates a 40-metre high water reservoir at the base of the tower as part of a pumped-hydro storage solutions. ● October marks the **birth of floating offshore** wind. Statoil’s 30MW Hywind Scotland project begins production, while Ideol inaugurates its ring-shaped pool-dampening floater, topped with a Vestas 2MW turbine, in the port of St-Nazaire, France. Ideol CEO Paul de la Guérivière describes the moment as a “turning point” in the floating wind sector.

November-

● **Turbine launches** at WindEurope’s conference and exhibition in Amsterdam include SGRE’s 8MW direct-drive offshore model, equipped with a 167-metre rotor and a power-mode option to increase output to 9MW. SGRE also launches a new 4MW geared platform with one model per wind-speed class. Envision reveals three new onshore models including a 4.5MW machine. ● Leading Indian manufacturer Suzlon showcases a textbook **reversal of fortune** for many turbine makers by recording a 56% year-on-year fall in income in Q3, due to the market uncertainty in the subcontinent. The firm reported a profit of INR 681 million (\$10 million) in the third quarter — a 72.07% reduction year-on-year.

December

● Germany’s energy regulator devises a plan to avoid some of the unintended consequences of its new onshore auction system, setting a **maximum bid price of €63/MWh** in 2018, after 2017’s tenders pushed prices below current generation costs. ● Argentina’s wind power gathers pace with **eight wind farms totalling almost 666MW** awarded PPAs in the second renewables tender at an average price of \$41.23/MWh. ■■

