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In association with Wind EUROPE renewableUK
LONDON 6-8 JUNE

Dong: 'we have no need yet' for floating wind

CHRISTOPHER HOPSON

Dong Energy, the world's biggest offshore wind developer, says it has "no need" to get involved in deep-water floating wind as it has more than enough shallow-water bottom-fixed projects in its development pipeline.

Executive vice-president Samuel Leupold told *Recharge* at OWE 2017 yesterday that he considers floating wind to be "a small niche so far in the offshore wind industry. There is a lot of work to be done for a bottom-fixed specialist like us".

"Even a player as big as Dong cannot do everything... for the time being, while we have decided to keep a close eye on these technologies, we don't see ourselves as being attracted in any way to taking an active part in floating foundations", he says.

Leupold said the BVG Associates/Geospatial Enterprises report unveiled on Tuesday shows it is "perfectly possible to use today's fixed technology" to achieve the wind industry's overall aims of supplying at least 25% of the EU's power needs by the end of the next decade at an average cost of €54 ($61) per MWh.

"If you go further from shore you could argue that you are looking for even better wind conditions, but take it from me, your grid costs will go through the roof if you continue to go further than 100-120km offshore."

Leupold added that wind speeds are "only 0.1 metres per second faster" at far-offshore deep-water sites, compared to shallower fixed-bottom projects.

Dong has stakes in 3.6GW of offshore arrays installed off Europe.

Samuel Leupold speaking at OWE 2017 this week

Photograph | Ian Howarth

This fleet has been built exclusively with conventional monopile foundations, although the 659MW Walney Extension off the UK and the 450MW Borkum Riffgrund 2 off Germany, both in development, will use steel jacket foundations.

Dong is also developing utility-scale projects in US and Taiwanese waters. R

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Siemens Gamesa's head of offshore wind, Michael Hannibal

Siemens Gamesa on the hunt for major offshore projects in Asia

BERND RADOWITZ

Siemens Gamesa Renewable Energy is hoping to win contracts for several commercial-scale offshore wind projects in Taiwan, Japan and South Korea out of its recently opened Taipei office, offshore wind chief executive Michael Hannibal told *Recharge* at OWE 2017 yesterday.

"We are looking at the Taiwanese market that to the best of our knowledge will be the next large market coming in APAC [Asia Pacific]," he said.

Siemens Gamesa is eyeing both the 128MW Formosa 1 wind array, which could be built next year — and for which it already provided two 4MW machines in a pilot phase — and is in discussions on another 120MW project off Taiwan that could be built in 2019-20.

The OEM is also trying to break into the Japanese market, where Hannibal sees opportunities for fixed-foundation arrays — not just floating projects, which are mostly discussed in Japan due to the depth of its waters. In particular, Siemens Gamesa is hopeful that it will get the nod for two bottom-fixed projects of around 500MW each that could be built in the early 2020s.

But Hannibal acknowledges that development times in Japan can be longer due to environmental impact studies, talks with fishermen and a lengthy process to get the necessary permits.

> Hannibal believes Asian developers may prefer to go with European OEMs due to their proven technology

While Asian countries have often opted to build pilot projects with turbines from local manufacturers, such as Japan's Hitachi, Hannibal believes developers and financiers may prefer to go with European OEMs due to their experience and proven technology, which "de-risks" projects as much as possible and so pushes down financing costs.

Siemens Gamesa is also looking at the fledgling offshore market in South Korea, and is in talks about supplying a 120MW project there, he adds.

In China, the manufacturer has indirectly delivered 4MW offshore machines via a licensing agreement to its previous joint-venture partner Shanghai Electric, which currently holds around three quarters of that market, according to a rough estimate by Hannibal. The licensing agreement has recently been extended to Siemens Gamesa's 6MW machine.

The company could not say whether future Chinese offshore projects would be supplied via Shanghai Electric (which also uses Siemens Gamesa blades produced in China) or be shipped from its production facilities in Europe.

OEMs 'will need 1GW-a-year pipelines to build new US factories'

BERND RADOWITZ

A yearly pipeline of around 1GW of installation for several years would be required to build an offshore wind nacelle plant in non-European markets such as the US, Siemens Gamesa chief executive Markus Tacke tells *Recharge*.

Already having an established manufacturing base with onshore nacelle and blade production in the US, his company wouldn't need to start from scratch as it could begin from an existing footprint, Tacke says.

"Nacelles are more difficult, because they depend on a global supply chain," he said. "So a nacelle factory is basically an assembly plant. More important for both nacelle and blade manufacturing is to minimise logistics costs by avoiding shipping heavy-duty and large cargo around the globe."

Samuel Leupold, executive vice-president of Dong Energy, agrees that a 1GW-per-year pipeline or several gigawatts towards 2025 are needed to build up a competitive supply chain.

"We're talking about markets that will either have the challenge of very long transportation ways, or inexperienced local suppliers that to some degree at least will have to go through the cost curve themselves," he tells *Recharge*.

Jens Tommerup, chief executive of MHI Vestas, adds: "We also know that we need to have support from the government."

Jens Tommerup at OWE 2017

Photography | Siemens | Ian Howarth

K2: Reducing the number of EPCI contractors 'could cut costs offshore'

ANAMARIA DEDULEASA

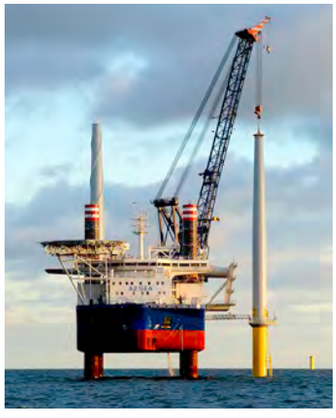
Developers could reduce the costs of projects by limiting the number of engineering, procurement, construction and installation (EPCI) contracts, research from wind consultancy K2 Management has revealed.

The report, *Reducing The Levelised Cost of Energy: Challenges, Trends and Opportunities in Today's Wind Projects for Tomorrow's Business Cases*, identified some of the "key challenges" that will shape the future of onshore and offshore wind farms over the next year by looking at data from 60 projects in Europe and Latin America.

Research showed that three in five projects are reducing risk exposure by limiting the number of contractors, which in turn "reduces the likelihood of a domino-effect of delays affecting multiple contractors", says K2.

"Developers have long since learned lessons from the delays and disruptions of inexperienced EPC contractors trying to do it all. The alternative strategy of splitting work into packages of 10 or more wasn't worth the risk of project-wide delays if one contractor fell behind."

The consultancy also found that a quarter of projects have underestimated the cost of operational expenditure, leading to concerns of a significant impact on the bottom line.



MAKE's Michael Guldbrandtsen at the OWE 2017 exhibition yesterday

Booming offshore market lifts MAKE global wind outlook

DARIUS SNIECKUS
CHRISTOPHER HOPSON

The mushrooming offshore wind market is providing a strong updraft to the wider wind build-out around the world, with consultancy MAKE upgrading its global outlook in Q2 by 10.8GW in expectation of a compound annual growth rate (CAGR) of 3.7% over the next ten years, taking total installed capacity to 1,067GW.

MAKE's *Global Wind Power Market Outlook Update* forecasts 66GW of offshore wind will come on line over the next decade with a faster CAGR of 17.3%, powered by maturing markets in China, the UK, Germany, Netherlands and France, and emerging plays in the US, Japan, Taiwan, South Korea and Poland.

MAKE's short-term offshore wind outlook, for 2017-19, is also upgraded by 7%, mainly due to accelerated activity in China where improved construction processes are sharply reducing installation time, making it likely that almost 1GW of new offshore projects will be switched on in 2017 at a time when onshore developers are wrestling with "policy restrictions".

The consultancy also spotlights the positive impact of the slated powering up off the UK of the 49MW Kincardine floating wind array in 2018, and the earlier-than-anticipated scheduled commissioning of the Hornsea One project moving from 2021 to 2019.

> We expect to see average auction prices of €30-40/MWh over most European markets by 2025

The success of tenders is creating conditions for a peak year in 2019 of nearly 65GW of on- and offshore in 2019, it says.

"The importance of an underlying economics-driven argument for wind power becomes paramount in measuring growth expectations as support mechanisms shift increasingly from direct incentives," says MAKE managing consultant Michael Guldbrandtsen.

"Globally, the results from [offshore and onshore] power auctions have signalled the industry's readiness to respond to a shift in policy mechanisms. However, with commissioning deadlines several years away in some markets, pressure mounts on removing cost in order to meet the low power pricing awarded at auction.

"The success of this effort will define the global growth profile over the next ten years."

MAKE says the recent offshore auctions in Germany, where zero-subsidy acreage was awarded for the first time, "may prove to be transformative".

"We expect to see average auction prices of €30-40 ($33.60-44.80) per MWh over most European markets by 2025 with zero-subsidy also happening in the Dutch and Danish markets. We also expect the US and Far East, mainly Taiwan, to gradually come down to European price levels," he adds.

Photography | Leigh Collins | A2SEA

Dutch to ditch CfD system in post-2023 market

ANAMARIA DEDULEASA

The Dutch government is preparing a new post-2023 strategy for offshore wind, which may go some way to improving long-term visibility in the sector.

Its highly regarded programme of annual tenders — in which winning developers receive contracts for difference (CfDs) and do not have to pay transmission costs — will result in 3.5GW of new offshore wind installed by the end of 2023, and has led to prices dropping as low as €54.50/MWh at the Borssele 3 & 4 tender last December.

A second "Energy Roadmap" for offshore wind is now being developed, Ruud de Bruijne of the Netherlands Enterprise Agency told OWE 2017, adding that the support mechanism is expected to change.

The Netherlands' Egmond aan Zee offshore wind farm

Photograph | Bloomberg/Getty

"We are already working on what our next roadmap will look like. We are busy with some official preparation, which will be, of course, up for decision making [by the government]," said de Bruijne, whose agency is responsible for the Dutch tenders.

"We have to prepare it now, as the first tender [for the post-2023 period] is going to be held in 2020. We have to be ready, we have to make sure [transmission system operator] TenneT is going to achieve grid connection, we also have to finish the site investigations by then. The only thing that is going to be really different is the support mechanism we will have in place.

"Now in the Netherlands, we have a contract for difference scheme, but since we are already in a zero-subsidy situation, that's going to be different."

Four more tenders are currently planned over the next three years. This year, 20MW will be offered at tender for innovation projects at the Borssele 5 site, while 700MW will be offered at the Hollandse Kust South 1 & 2 projects.

Next year, a further 700MW will be offered for tender at Hollandse Kust South 3 & 4, followed by another 700MW in 2019 at Hollandse Kust North.

Ports join forces to find offshore cost savings

Eight European ports active in offshore wind have joined forces to share best practice and engage with industry and policymakers with a united voice.

WindEurope's new Ports Platform also aims to find efficiencies that will help reduce the cost of offshore wind.

The participating ports are Esbjerg, Green Port Hull, Groningen Seaports, Atlantic Port La Rochelle, Amsterdam, Den Helder, Oostende and Renewable Energy Base Oostende.

The Port of Oostende, Belgium

Fred Olsen to install turbines at Albatros

Fred Olsen Windcarrier has won the contract to install Siemens Gamesa 7MW turbines at EnBW's 112MW Albatros offshore wind farm in the German North Sea.

The installation is scheduled to begin during the second half of 2019.

Siemens Gamesa hired Fred Olsen Windcarrier after winning the full-scope supply contract for Albatros from project owner EnBW earlier this month.

STX unveils new line of substations for 2020s

French contractor STX has unveiled a modular line of next-generation substations for offshore wind.

The SeeOs (scaleable efficient evolutive offshore station) platform is designed to be built up, Lego-style, from 200-900MW, and installed on monopile, jacket or floating foundations depending on the site.

"SeeOs is the electric transmission solution for offshore energy of the 2020s," says Frédéric Grizaud, head of STX's offshore energy business.

Trump's Paris exit 'is bad business decision, after record 2016'

CHRISTOPHER HOPSON

President Donald Trump's decision to quit the Paris climate deal is a bad business decision for America, said global policy network REN21 after a record-breaking 2016 for renewables that saw them trounce other energy sources on costs.

Christine Lins, executive secretary of REN21, tells *Recharge* that the addition of a best-ever 161GW of renewable capacity worldwide last year, falling costs for wind and solar, and growing commitment from governments and corporations prove the global energy transition is well under way.

"We now have 176 countries around the world with renewable-energy targets," says Lins.

She explains these trends are "in stark contrast to Trump's decision to withdraw from the Paris climate change deal".

"One of the reasons his decision is so puzzling to everyone is that it's counter-intuitive when you think about business," she says. "We are seeing all around the world companies committing to 100% renewables, mainly because it makes economic sense.

"I think we are going to see more energy co-operation between Europe, India and China, with the EU now able to re-establish its global leadership and step up its renewables efforts".

The 2017 edition of the *REN21 Renewables Global Status Report* shows the world now has 2,017GW of renewables installed.

Wind accounted for 34% of the capacity added last year, solar 47% and hydropower 15.5%.

The 161GW added last year was a record and 10% higher than 2015, yet required 23% less financial investment as equipment costs fell.

REN21 says renewables are becoming the lowest-cost option for power. Recent deals in Denmark, Egypt, India, Mexico, Peru and the United Arab Emirates saw renewables being delivered at $0.05 per kWh or less — well below equivalent costs for fossil fuel and nuclear generating capacity in those countries, it said.

The policy network claims integrating large shares of variable renewables generation can be done without fossil fuel and nuclear baseload, provided there is sufficient flexibility in the power system — through grid interconnections, sector coupling and enabling technologies such as ICT, storage systems, electric vehicles and heat pumps.

President Trump indicates the level of his understanding of climate and energy issues during his announcement to withdraw from the Paris Agreement

Photography | Getty

Showing some *Moxie* at OWE 2017

Fresh from an assignment at Vattenfall's 288MW Sandbank wind farm in the North Sea, Siem Offshore's *Moxie* personnel transfer vessel has been moored outside OWE 2017 in Royal Victoria Dock. The world's first dedicated offshore wind walk-to-work vessel, which features an active motion compensated gangway as well as an innovative and 3D motion-compensated' crane, was launched in April 2014 and has since transferred more than 52,000 personnel across more than 14,000 connections with the built-in gangway, and undertaken over 6,700 crane lifts on offshore wind projects

Photograph | Leigh Collins

Dong to link Burbo Bank to battery in offshore wind first

BERND RADOWITZ

Danish utility Dong Energy is to link its 90MW Burbo Bank offshore wind farm to a 2MW onshore battery system, in what will be an industry first. The equipment, provided by ABB, will be installed by the end of this year, providing frequency response services to the UK's National Grid to help manage grid stability.

> If the frequency was to deviate from 50Hz, it would affect everything plugged into the grid

The mains frequency on the grid is a continuously changing variable that must remain close to 50Hz. If the frequency was to deviate from these limits, it would affect everything plugged into the grid, from home appliances to power stations. The ability to inject or reduce bursts of active power allows the grid to rapidly respond to changes in frequency.

"As Great Britain's energy mix changes, we know that ensuring a safe and stable supply of energy into the future will require more flexible services," says Richard Smith, head of network capability for National Grid.

Combining a battery system with a wind farm can provide fast and less costly frequency support, and thus save money for electricity consumers, Dong adds.

"The need for flexibility is expected to grow, and as a low-carbon leader we're keen to be part of the solution to make the energy system smarter," says Ole Kjems Sørensen, senior vice-president, partnerships/M&A and asset management at Dong.

The technology was presented at OWE 2017 yesterday.

Burbo Bank offshore wind farm, off northwest England, has been fully operational since 2007 and uses 3.6MW Siemens turbines.

Last month, Dong opened the the 258MW Burbo Bank Extension, the first to deploy 8MW MHI Vestas turbines.

CONFERENCE

MAKING FLOATING WIND ENERGY COMMERCIALLY COMPETITIVE

09:30 - 10:45, Room 8

This session will look at on ongoing and planned projects in floating offshore wind, from the perspective of project developers, technology developers and suppliers. Delegates will get a better understanding of the status of ongoing and planned projects, the market potential and cost reductions.

- **Session chair:**
  Stephen Bull, Head of Wind and CCS, Statoil
- **Speakers:**
  Ole Stobbe, Business developer for Northern Europe, IDEOL, France

  Sabrina Dankelmann, Senior project manager, MECAL

  Jesper Moeller, Head of offshore concepts & solutions, Siemens Wind Power, Denmark

  Sebastian Bringsærd, Head of Hywind development, Statoil, Norway

MAKING THE MOST OF SYNERGIES BETWEEN OIL AND GAS AND OFFSHORE WIND

11:30 - 12:45, Room 12

The oil and gas supply chain is looking for opportunities for diversification; this session will explore how both industries can benefit from each other. It will feature a series of showcase presentations of lessons learned by oil and gas companies that have diversified into offshore wind. It will also look at the decommissioning of offshore wind turbines and lessons that can be drawn in this respect from experience in offshore oil and gas.

- **Session chair:**
  Jon Dugstad, Director, Norwegian Renewable Energy Partners
- **Speakers:**
  Jan-Fredrik Stadaas, Strategy and Innovation Manager, Statoil, Norway

  Alan Duncan, Senior associate, BVG Associates, UK

  Sarah Miller, Sales Manager, Renewables, Muir Matheson Ltd, UK

  Robbie Williamson, Mechanical Engineer, Atkins Energy, UK

EXHIBITION

DEMO ZONE (South Hall, S-D50)

It will showcase products from selected exhibitors throughout the event. Stop by during the below times.

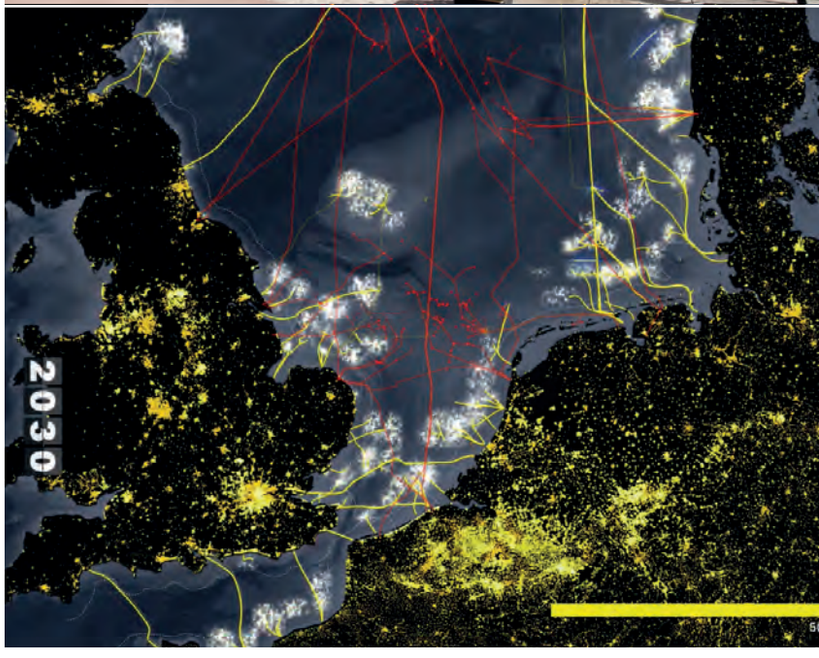
11:00 - 11:25 ProPlanEn presents WakeBlaster
12:50 - 13:15 Survitec
13:30 - 13:55 Floating Power Plant (FPP)

OUTDOOR VESSELS

Step outside the South Hall to see the mighty Atlantic Enterprise and Siem Moxie offshore service vessels. Free tours of these 80+ metre vessels will take place every day of the event. Visit their stands for more information: Atlantic Marine (S-K21), Siem (N-E10).

2050 – AN ENERGETIC ODYSSEY

Located in the South Hall this large-scale video installation demonstrates what should be done if we are to take the two-degree climate target seriously.



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X's 660kW high-altitude wind-energy kite prototype over the California desert

High-altitude power kites take off

ANAMARIA DEDULEASA

High-altitude wind energy (HAWE) has reached the testing phase, with a Google-owned 600kW prototype kite taking its maiden flight in California, and a Shell- and E.ON-backed UK start-up due to test a 500kW pilot in Scotland this summer.

Kite Power Systems (KPS) is aiming to develop a device that can be deployed on- and offshore, flying on the fast air currents high above the ground and pulling on its cable to generate electricity. The KPS system is based around two kites that fly in the same airspace, such that while one is generating power, the other is being retracted. "Energy produced is therefore constant and the alternator kept rotating near optimal speed," KPS says.

"Our current planning consent for our new 500kW system allows for in-flight testing between April and September," says business development director David Ainsworth.

Following the initial deployment at former Royal Air Force station West Freugh, in southern Scotland, the company plans to test multiple 500kW systems onshore within the next three to four years. It then plans to develop a 3MW onshore system at West Freugh before deploying a similar-sized power system in offshore waters.

KPS says its technology "is cheaper to manufacture and requires less construction and installation materials than conventional wind turbines". "The lower cost means that kite power generation would not need government subsidies and could be deployed in the North Sea and in waters up to and potentially deeper than 40 metres found offshore of countries such as Portugal, Japan and the US," it says.

> The lower cost means that kite power generation could be deployed in waters deeper than 40 metres

Meanwhile, in the US, the snappily named X — Google parent company Alphabet's "moonshot" technology development arm — completed the maiden flight of its 600kW HAWE kite at a secret location in the California desert.

The device, which is built around a 26-metre wing featuring eight onboard rotors each 2.3 metres in diameter, generates power while following "cross-wind flight" patterns 90-360 metres in the air, with produced energy travelling down a tether to a ground-base below.

The device tested is the eighth developed. The previous iteration of the technology, Wing 7, was a 20kW system measuring 7.6 metres across with four rotors 68cm in diameter.

"Increasing the size of the system is crucial to getting the kite to commercial viability," said Fort Felker, general manager of technology developer Makani, which was bought by Google in 2013.

"Each kite has to generate enough electricity to justify the cost of operating it. But with increasing size comes increasing weight — always a challenge when you're building something that flies — and other types of engineering complexity."

X tells *Recharge* that the company will be trialling new rotors and "other system changes" designed to increase power output in the coming months.

Photograph | X

The Block Island wind farm under construction off Rhode Island

Keith Anderson is chief executive of Iberdrola unit ScottishPower Renewables

US offshore sector will bring jobs — and help global industry to progress

KEITH ANDERSON

The offshore wind industry is evolving quicker than anyone predicted, and that pace of progress shows no signs of slowing. In the UK and across Europe the industry has met and exceeded all challenges and expectations over the last decade.

Projects are now more ambitious and larger in scale. The technology is more advanced, the components are more robust and turbines are being placed in deeper waters. The ports and harbours that support projects have been developed and enhanced and huge bespoke vessels have been built. All this means that costs have been reducing rapidly.

Companies like Iberdrola have been there from the start, because we know that if climate change has any chance of being tackled, then we need to maximise offshore wind power's huge potential. Very early we could see that it was an industry that could be developed quickly, and investment risks could be reduced. The technology works and the costs make sense. Ten years ago offshore wind would not have been at the top of any major investor's list of attractive projects, but now the world's biggest investors all want to be involved.

This confidence gives the industry strength, and the major pipeline of projects in the US and the huge investment associated with it means jobs, skills, manufacturing and training opportunities. Just as we see towns and cities across the UK and Europe benefiting, so too will many areas in the US.

> Just as we see towns and cities across the UK and Europe benefiting, so too will areas in the US

The industry and policy makers need to continue working closely together to ensure that the economic benefits can match the environmental benefits. Access to reliable low-carbon electricity for businesses will also help to drive wider growth in the economy.

Offshore wind is now a tried and tested technology and the opportunities to grow the industry in the US are substantial. Progressive policies in many states have given the industry a boost, and we have every confidence that the US is well placed to be a leader in this sector. The strong competition to develop projects and secure contracts, and the significant investments that major companies are ready to take, shows that the industry will be a success.

The US clearly has the skilled workforce and the eye for innovation that will help to progress offshore wind even further. It is an exciting time for the sector, and if all the dots can be joined, then US offshore wind will have a hugely positive role to play in job creation at home and in the fight against climate change globally.

Photograph | Deepwater Wind

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Inside MHI Vestas' nacelle factory in Lindø, Denmark

Tetsushi Mizuno is co-chief executive at MHI Vestas Offshore Wind

More collaboration and customisation needed to keep cutting offshore costs

TETSUSHI MIZUNO

Subsidy-free bids at the recent German offshore wind auction sent shockwaves through the renewable-energy sector. Could it be that the business case for wind energy, and offshore wind in particular, is that much stronger than industry analysts predicted it would be at this stage?

Offshore wind power is undeniably maturing as a sustainable renewable-energy technology. But we see these results as a continuation of the downward trajectory in levelised cost of energy (LCOE) and, therefore, more needs to be done. The truth is, everyone in the offshore wind supply chain must continue to optimize operations, drive down cost, and increase collaboration where possible if we're going to have a truly sustainable, global market for decades to come. The LCOE challenge remains a daunting one regardless of steep reductions over the past 24 months.

To solidify our place in the energy mix, offshore wind suppliers would be well served to embrace a truly collaborative paradigm. From the turbine manufacturer's standpoint, we believe it's imperative to work actively in a collaborative spirit with both customers and sub-contractors.

As evidenced by the mammoth turbines spinning in European waters today, offshore wind has some of the best technical and engineering minds in the world. Harnessing this expertise will continue to drive innovation forward, not only in the manufacturing and installation of giant turbines, but up and down the entire supply chain.

Beyond the positive effect on innovation, another outgrowth of a collaborative approach is the collective expertise the industry gains as we stand on the threshold of global expansion. The next ten years will see expansion into new markets and the establishment of regional supply chains. Inevitably, we will also see the growing pains that will accompany growth in these new regions.

It's worth noting that the US market took a major step forward during 2016 after the legislature in Massachusetts passed a bill mandating the state's utilities to procure 400MW of offshore wind power in 2017 with 1.6GW installed by 2027. It is expected that the US will commission its first large-scale offshore wind power plant around 2020. Increasingly, forecasters are also expecting Asia-Pacific to grow its offshore wind power installations. New offshore wind markets such as Taiwan and Japan are currently exploring opportunities to install large-scale offshore wind plants.

Expansion of the industry will also require a level of customisation that we do not see in the water today. New markets mean an increase in environmental diversity, including wind patterns and seabeds, new regulatory requirements for both manufacturing and supply chain infrastructure, and advanced R&D in the establishment of grid architecture that can support offshore wind and an increasingly diverse energy mix.

Our dynamic and complex sector is entering a new era — one that hopefully will see us secure an indispensable place in the energy mix. But our drive towards that goal must be characterised not only by competition, but also by collaboration. Moving forward together will lead offshore wind to new levels of innovation, shared expertise and best practices, customisation, and the sustainable expansion of the sector to new markets across the globe.

Photograph | MHI Vestas

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.

Worldwide-webbed readers today access information in a medium where free is the norm. But pause and question the value of this 'news', especially in the speeding evolution of the renewable energy industry, where only the 'what' is reported, not the 'why' not the 'how', not the market insight or intelligence.

Intelligence is what our team of international journalists does best – and has done since our launch eight years ago. Read **RECHARGE**. Like the wider renewables industry, we espouse change for the better in the global energy system; as a business intelligence title, we aspire to do the same for energy journalism.

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