

03. red-hot port matters

07. market SMS

featured article

10. Wind power helps Europe breathe easier

- The five-year outlook for wind energy sees Europe chasing Asia

Ewa Kochańska

15. Partnership delivers

- Interview with Wim Stubbe, and Emmanuël Timmermans
- Przemysław Opłocki

18. editorial

18. upcoming issues

18. partnership events

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red-hot port matters

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VELA-Wilson Sons Group cloud co-op in Brazil

The Group's container terminals **Tecon Rio Grande** and **Tecon Salvador** will, as the first in Latin America, work with **XVELA** as early adopters of the company's cloud collaboration platform. According to XVELA, early visibility can help terminal operators identify potential issues in advance and resolve them before they have a negative effect on the vessel operations. This includes real-time notifications of any mismatch between the carrier's stowage plan and actual stowage execution, such as a hazardous box in a non-hazardous slot, so potentially costly mistakes can be corrected before load operations are complete, reducing the risk of ships not sailing on time. The terminals will use the solution to collaborate with **Log-In Logistica**, a provider of cabotage door-to-door intermodal logistic services in Brazil and the greater Mercosur region (apart from Brazil also Argentina, Paraguay, and Uruguay). "As the first terminal operators in Latin America to use XVELA, Tecon Rio Grande and Tecon Salvador demonstrate that they are leading the way toward a more reliable and service-oriented supply chain," **Guy Rey-Herme**, President, XVELA, said. He furthered, "By working directly with their ocean carrier customers through XVELA's business network, Tecon Rio Grande and Tecon Salvador, along with any carriers calling at these terminals, can benefit from a win-win collaboration that drives greater efficiency, higher resource utilization, and better service for all parties."

Holland America Line switches more vessels to cold ironing

ABB has retrofitted three cruise ships of the **Holland America Line** with shore power connectors, so that they can now plug into onshore power supply during their port calls. After having executed three new installations, Holland America Line's fleet features a total of 11 cruise ships outfitted with ABB's shore power connectors. Primary distribution voltage can vary from 440 volts to 11 kilovolts, while load requirements can range from a few hundred kilowatts in the case of car carriers to a dozen or more megawatts in the case of passenger ships, particularly cruisers, or reefer-heavy container carriers. "Implementation standards for connectors and cables vary. ISO 80005-1 offers an international standard covering design, installation and testing of high-voltage shore connections and an update for low-voltage systems is in the pipeline, but the lack of such a standard has hindered the adoption of shore power, despite its agreed benefits," ABB's press release sheds light on the issue. The company, the paragraph continues, "[...] offers a single interface for complete port electrification and grid integration that is compliant worldwide and can be installed for newbuilding projects or for retrofit." **Juha Koskela**, Managing Director, ABB Marine & Ports, added to this, "Over the last 13 years, ABB has developed and installed shore power connections for a wide variety of ship types, including cruise vessels, and has extensive practical know-how across a spectrum of power and switchboard configurations. We have also reached the point where the full installation can be done during the normal operation of the vessel. For Holland America Line, we completed three turnkey projects simultaneously, covering procurement, engineering, installation and commissioning." **Orlando Ashford**, President, Holland America Line, also commented, "Holland America Line remains firmly committed to including new technical solutions that truly advance its policy for sustainable operations. Our ships call at the world's most beautiful destinations, which is one reason we prioritize environmental responsibility. These ships can now achieve very low emissions while in ports where shore power is available."

Liebherr sells to Guatemala

Yilport, the terminal operating arm of the Turkish **Yildirim Group**, has taken delivery of two type LHM 600 mobile harbour cranes from **Liebherr**. The new machinery was brought fully erected to Yilport's recently acquired terminal in **Puerto Quetzal**, Guatemala's largest Pacific Ocean port, on-board the ro-ro ship *Rolldock Storm* all the way from Liebherr's plant in Rostock. Each of the twin lift LHMs offers a max outreach of 58 m and a lifting capacity of up to 104t, making it possible to take care of ships carrying 19 rows of containers, nine stacks-high. "These new machines are an essential future investment in Yilport's terminal in order to handle the new generation of vessels. Liebherr is looking forward to a cooperative and strategic partnership with the Yildirim Group. We are delighted that Yilport Holding trusts in our reliable cranes. Looking ahead to projects in the pipeline for the coming year, it is clear that we will continue to expand this partnership," **Andreas Müller**, Sales Director, Mobile Harbour Cranes, commented on the deal.

Høglund and Yxney Maritime team up

The two have signed an agreement to launch an integrated vessel performance monitoring solution. According to the parties, the system will give shipowners and managers access to real-time fuel consumption data and analytics, allowing for better decision-making and improved ship and fleet fuel efficiencies. Under the agreement, **Høglund Marine Automation's** Ship Performance Monitor (SPM), which collects and stores accurate fuel consumption data for an individual vessel or an entire fleet, will be integrated with **Yxney's** cloud-based database MarESS, allowing the data sets to be processed and presented to the customer on a user-friendly interface. Shipowners, managers, and crew can then use these data insights to find more efficient ways of operating and reducing fuel consumption. "At a time when vessel data is becoming increasingly valuable, it's vital that the industry consolidates its skills and expertise to create solutions that are built to last and fully support the industry's trajectory towards a cleaner, lower-carbon future. [...] Automation systems are not only essential to the reliability of a vessel – they are also a valuable source of data. Unfortunately, much of the solutions available on the market make it difficult for users to access this – which is why we developed the SPM. Yxney's capacity to process data and visualise it in a way that is accessible to both owners and crew, will augment our existing offering and provide our customers with the solutions they need to ensure efficiency and reliability of their fleet in the long term," **Børge Nogva**, CEO, **Høglund Marine Solutions**, commented. **Gjerd Simen Sanna**, CEO, Yxney Maritime, also said, "We're excited to team up with Høglund and to now have the opportunity to offer a cost-efficient and powerful solution to customers looking for a plug-and-play system that can both measure and visualise actionable information about the fuel efficiency of their fleet. We see this partnership as an answer to the demand among vessel owners to take control of their own data, and to get ahead in the race towards better fuel efficiency and lower emissions. Combining our solutions gives our customer access to new decision-making feedback, driven by data analytics, to make more direct fuel-saving initiatives. MarESS and Høglund SPM are like Maverick and Goose flying together again."

Hapag-Lloyd invests in scrubbers ahead of 2020

The shipping line will retrofit a total of 10 of its 13k TEU-big Hamburg type carriers with hybrid ready exhaust gas cleaning systems (EGCS). *Hamburg Express* will be the first to receive the new machinery, which will be installed at the **Qingdao Beihai** shipyard in March 2019. The retrofitting programme is scheduled for completion by end-2020. The investment follows the decision of the International Maritime Organization to lower worldwide the permissible level of sulphur in ship fuel from current 3.5% to 0.5% as of 1 January 2020 (excl. the 0.1% Sulphur Emission Control Areas that are already in place). "Using compliant low sulphur fuels is the key solution for **Hapag-Lloyd**. However, we want to make sure we test and make use of all relevant solutions, which is why we decided to also retrofit our Hamburg Class vessels with EGCS," **Anthony Firmin**, COO, Hapag-Lloyd, said. In addition, Hapag-Lloyd will convert in 2019 one of its 15k TEU-big ships to run on liquefied natural gas in order to also assess this method of complying with the 0.5% cap.

The Chinese Cruise Hub – with Italian support

The Trieste-based shipbuilding conglomerate **Fincantieri** and the **Baoshan District**, Shanghai, have partnered to set up a hub tasked with promoting the cruise industry in China. Within the **Chinese Cruise Hub** the parties will jointly work on both promoting and marketing cruise tourism among the local population as well as on building cruise ships on-site (today, the overwhelming majority of cruisers is being delivered by European shipyards, some 89% in 2017). Specifically, the Baoshan District will provide financial, tax, commercial, and administrative benefits, along with the necessary land for development as well as other resources to attract companies, also foreign, to take part in developing the Chinese cruise market. The establishment of the hub follows a \$1.5b-big deal struck in February 2017 between **Shanghai Waigaoqiao Shipbuilding (SWS)**, a subsidiary of the **China State Shipbuilding Corporation (CSSC)**, **Fincantieri**, **CSSC Cruise Technology Development (CCTD)**, and **CSSC Carnival Cruise Shipping**, a joint venture between **CSSC** and **Carnival Corporation**, for the delivery of two cruise ships. The first vessel is expected to be delivered by SWS in 2023. Fincantieri and CCTD will grant a technology license of the ship model platform and provide a series of technical services to the Chinese shipyard, including project management activities, supply chain management, and sales of fundamental systems and components of the ship. The contract also includes an option for four more vessels.

EUROGATE Tanger buys RTGs from Kalmar

The Finnish manufacturer will deliver two rubber-tyred gantry cranes (RTGs) to the **EUROGATE's** Moroccan sea container handling facility in the third quarter of 2019. The diesel-electric machinery will be able to lift up to 50t, and stack the boxes 7+1 rows wide and 1-over-5 high. The RTGs will be fitted with the Kalmar SmartRail automated gantry steering solution with Container Position Indication, which automatically controls the gantry steering and feeds container coordinates to the terminal operating system. They will also feature **Kalmar SmartFleet**, a process automation solution that, according to the manufacturer, improves operational transparency and reduces downtime through remote equipment monitoring and reporting. All RTGs currently operated at EUROGATE Tanger have been supplied by Kalmar. "Kalmar RTGs have been the backbone of our operations for many years already, so it was a natural step to turn to Kalmar once again when it came to expanding our existing fleet. We appreciate Kalmar for their innovative technical solutions and we are sure to continue together to increase the terminal performance and reliability," **Andrea Cervia**, CEO, EUROGATE Tanger, commented. **Ilkka Annala**, Vice President, Intelligent Crane Solutions, Kalmar, added, "We have enjoyed a very successful long-term relationship with EUROGATE Tanger, and we are very pleased that they have once again chosen our safe, reliable and fuel-efficient RTG solutions to support operations at the terminal."

Grande Torino joins Grimaldi's fleet

The Chinese **Yangfan** shipyard has delivered the first in a series of seven pure car & truck carriers (PTCT) to the **Grimaldi Group**. The GT 62,255-big *Grande Torino* is 199.9 m-long and 36.45 m-wide. With her four hoistable decks, she is able to take on-board up to 7,600 CEUs or, alternatively, offer 5,400 lane metres of cargo capacity and space for 2,737 CEUs. The vessel is fitted with a side ramp and a quarter stern ramp, the latter allowing to load freight units up to 150t. The *Grande Torino*'s main engine is electronically-controlled, allowing her to meet the new regulations for the reduction of nitrogen oxide emissions. She's also equipped with a scrubber to sail on heavy fuel oil within sulphur emission control areas as well as with a ballast water treatment unit. *Grande Torino* will be put on the Group's Mediterranean-North America service, covering the ports of Gioia Tauro, Civitavecchia, Livorno, Savona, Valencia, Antwerp, Halifax, Davisville, New York, Baltimore, Jacksonville, Houston, Tuxpan, and Veracruz. "With the deployment of the *Grande Torino*, our biggest car carrier vessel, the Group's fleet becomes even younger, more innovative and more efficient. We have once again responded to market demands with technological innovation, quality and sustainability, and we will continue to do so," **Emanuele Grimaldi**, Managing Director, Grimaldi Group, commented on the delivery.

Container majors target digitalisation through a new association

Maersk, **CMA CGM**, **Hapag-Lloyd**, **MSC**, and **Ocean Network Express** are discussing the setup of a new non-profit body the aim of which will be to pave the way for digitalisation. According to the founding members, this is to be done through creating common information standards that will be openly available and free of charge to all stakeholders involved in the initiative. The association has no intent of developing or operating any digital platform. It will also not discuss any commercial or operational matters. The association will kick off its works in early 2019 (granted it gets the regulatory approvals if any will be needed). "MSC believes that we've reached the point in the carrier world where we need something that is common, open and done in the framework of a neutral and non-profit association. By collaborating on standardized solutions, we think that's the best way to respond to shippers' demands for technology and innovation, thus shaping the future of the shipping industry. [...] Together, we gain traction in delivering technological breakthroughs and services to our customers compared to working in our own closed silos," **André Simha**, CIO, MSC, and spokesperson of the group, said. **Adam Banks**, Chief Technology & Information Officer, A.P. Møller-Mærsk, added, "A joint set of technical standards will ensure interoperability and enable all parties to concentrate on value adding differentiation as we move the container shipping industry towards further digitalization. Ultimately this will benefit all parties in our customers' supply chains." **Noriaki Yamaga**, Managing Director, Corporate & Innovation, Ocean Network Express, also said, "Ocean Network Express sees a wave of innovation technology development in shipping and logistics industry over the recent years which can bring good opportunity to the whole industry for digital transformation. But, at the same time, we're a little bit cautious about adopting new technology by individual company since there is no common standard in the market which may be ending up with re-integrating work among all stakeholders in the supply chain. With this mind, we feel it would be necessary to do some discussion and collaboration on the area of new technology and innovation to establish common IT standard and governance for the industry to streamline and digitize shipping process in a modern way."

Navis and COSCO create a joint Center of Excellence

The Center (CoE) will deliver dedicated resources from both parties for the implementation of **Navis' N4** terminal operating system (TOS) across **COSCO Shipping Ports' (CSP)** facilities as well as support on-going optimisation initiatives of the Chinese company. The CoE model is a long-term engagement between Navis and CSP aimed at enabling the latter to implement the projects themselves, shortening the timeline to deliver services through dedicated, on-site, and remote resources. Over time, the CoE will transfer tasks currently executed on-site in projects to be performed remotely, including base configuration, test support, automated testing, code extensions, etc. Key areas supported by the CoE include Content Governance (define and use of a CSP standard delivery methodology and tools; this area will be based on Navis' methodology and adapted to support CSP strategy); Platform Management (deploy N4 as the sole standard TOS across the CSP portfolio and fully automate business process testing of software releases against CSP requirements); IT Landscape (define the CSP IT landscape and explore the use of multi-facility setup for small terminals without on-premise hardware); Knowledge and Skills Management (training based on Navis STACK Academy with CSP curriculum and certification to build up a team of N4 experts within CSP); and Change Management (support CSP in the change to Navis as the singular TOS solution; support will also oversee organizational and operational change management). The new partnership builds on a previous deal, as earlier in 2018 CSP entered into a subscription agreement with Navis to implement the N4 TOS across its network (269 berths in 38 ports worldwide, of which 179 are for handling containers). The CoE is organized to deliver several projects, regardless of terminal type (greenfield, semi-automated, automated), in parallel as CSP facilities migrate to N4. "Joining forces with COSCO Shipping Ports is the latest in a string of strategic partnerships for Navis with innovative terminals committed to cutting-edge technology and is a logical next step stemming from our subscription agreement earlier this year. As CSP works to bring its full network of terminals onboard N4, our dedicated teams, both at the CoE and regional level, will be there every step of the way to ensure smooth transitions and substantially improve implementation timelines. CSPs customers will now have access to a global team of Navis experts, dedicated to helping them get the most out of our software to achieve operational excellence," **Bruce Jacquemard**, Chief Customer Officer, Navis, commented. **Zhang Wei**, Vice Chairman and Managing Director, COSCO Shipping Ports, added, "Our partnership with Navis and the CoE is critical for the multi-facility setup of N4 that is already underway – providing one central solution for all terminals within our corporate infrastructure. With Navis' help, we'll create a standardized delivery method, based on their years of experience as the leading TOS in the market and key takeaways from the hundreds of N4 implementations that they have successfully executed. With a scalable and repeatable approach, global experience backing the CoE and supplemental regional teams, CSP is well positioned to bring N4 live across our network and improve overall operational efficiency."

Port of Houston buys RTGs from Konecranes

The Finnish manufacturer of port handling equipment will deliver eight hybrid diesel-electric rubber tyred gantry (RTG) cranes to the **Barbours Cut Terminal** in Q1 2020. The machinery, able to lift up to 50t and stack containers 1-over-5 high and 6 plus truck lane wide, will feature a tier 4f engine that will charge the lithium-ion battery pack when necessary. The status of the battery system will be possible to be monitored via a remote connection, **Konecranes' TRUCONNECT®**. In addition, the gantries will be equipped with a number of other performance- and safety-enhancing systems, including active load control, auto-steering, auto-positioning, stack collision prevention, truck lift prevention, and auto-terminal operating system reporting. The latest batch will join the **Port of Houston's** Konecranes RTG fleet, which over the past 15 years has grown to 90 units. "These RTGs will help Port Houston to reach its long-term eco-efficiency goals. Konecranes is constantly pushing the limits of battery technology and electrification to make our container handling equipment more eco-efficient without compromising crane performance in any way. I'm very pleased that Port Houston has the confidence in our technology to select these advanced RTGs," **Jussi Suhonen**, Sales Director Americas, Konecranes Port Solutions, commented on the order.



Photo: Port of Houston



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The Port of Valencia:

37.39mt handled in H1 2018 (+3.0% yoy)

Only the turnover of liquids noted a drop in the reported period, by 34.9% year-on-year to a total of just over 1.05mt.

The Port of Valencia's volumes

	H1 2018	H1 2018/H1 2017
General cargo	34,882.9kt	+4.1%
Dry bulk	1,322.2kt	+26.1%
Liquids	1,052.4kt	-34.9%
Total	37,393.3kt	+3.0%
Unitised freight traffic		
TEUs	2,498,384	+6.4%
Finished vehicle logistics (new cars & other vehicles)	443,218	+7.4%
Ro-ro cargo units	117,119	+11.2%
Passenger traffic		
Ferry	275,993	+2.8%
Cruise	156,845	+4.4%
Total	432,838	+3.4%

The Port of Piombino:

2.24mt handled in H1 2018 (-2.2% yoy)

While imports rose by 2.3% year-on-year up to over 1.31mt over 2018's first half, exports contracted by 7.9% yoy down to 932.3kt. With 1.55mt (-1.6% yoy), the turnover of general cargo constituted the bulk of the Italian seaport's cargo traffic in H1 2018. Out of this figure, ro-ro & ferry traffic (+0.8% yoy) accounted for almost the entire volume, with the remaining 2.0kt being break-bulk (-95.0% yoy). The number of ro-ro cargo units going through Piombino's quays was smaller than in H1 2017, too, down by 1.7% yoy to 69,347 trucks and trailers. Both the throughput of dry and liquid bulk decreased in the reported period, by 2.2% yoy and 31.8% yoy to 671.6kt and 20.8kt, accordingly. Passenger traffic noted a downtick as well, totalling 1,192,976 travellers (-5.1% yoy). Local traffic amounted to 1,161,696 passengers (-5.6% yoy), ferry to 25,788 (+5.3% yoy), whereas cruise to 5,492 (+154% yoy).



Photo: Port of Valencia

UK ports:

231.44mt handled in H1 2018 (-2.6% yoy)

The Top 10 took care of 164.79mt over this year's first half – 71.2% of the total – less by 2.2% year-on-year.

The UK ports' volumes (million tonnes)

	H1 2018	H1 2018/H1 2017
Grimsby and Immingham	28.34	+5.6%
London	25.89	+6.1%
Southampton	16.99	-7.9%
Milford Haven	14.99	-7.3%
Liverpool	14.96	-9.4%
Tees and Hartlepool	14.04	-0.1%
Forth	13.87	-6.1%
Felixstowe	13.13	-9.4%
Dover	12.83	-4.6%
Belfast	9.76	+4.5%
Hull	4.85	+1.2%
Rivers Hull and Humber	4.81	+2.5%
Medway	4.37	-9.1%
Bristol	4.16	-4.1%
Clyde	4.02	-7.2%
Manchester	3.28	+0.3%
Port Talbot	3.19	-12.1%
Glensanda	2.92	-8.6%
Holyhead	2.61	+2.1%
Sullom Voe	2.48	-9.3%
Heysham	2.35	+1.9%
Tyne	2.05	+23.7%
Harwich	2.02	-15.9%
Aberdeen	1.92	+1.8%
Portsmouth	1.88	-6.2%
Warrenpoint	1.80	+5.8%

	H1 2018	H1 2018/H1 2017
Orkney	1.78	-25.7%
Larne	1.44	+1.6%
Cairnryan	1.42	+0.8%
Newport	1.37	-24.0%
Loch Ryan	1.28	+6.3%
Plymouth	1.22	+1.8%
Shoreham	1.03	+3.0%
Ipswich	1.00	+2.2%
Londonderry	0.96	+4.8%
Cardiff	0.89	+14.9%
Peterhead	0.74	+18.6%
Goole	0.73	+1.6%
Great Yarmouth	0.59	+19.1%
River Trent	0.54	-13.0%
Sunderland	0.45	+3.1%
Newhaven	0.36	-8.7%
Boston	0.36	-11.8%
Kilroot Power Station Jetty	0.35	-15.4%
Poole	0.34	-20.3%
Dundee	0.29	+2.9%
Swansea	0.24	-17.1%
Fowey	0.22	-12.4%
Fishguard	0.21	+0.5%
Cromarty Firth	0.09	-22.2%
Ramsgate	0.04	+63.9%
Total	231.44	-2.6%



Photo: bizbilla

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featured article

The five-year outlook for wind energy
sees Europe chasing Asia

Photo: Ørsted

Wind power helps Europe breathe easier

by Ewa Kochańska

The European Union has agreed that increased use of renewable energy sources is necessary to reduce greenhouse gas emissions (GHG) for public health reasons as well as to comply with the 2015 Paris Agreement's targets. Wind energy is one of the fastest growing renewables in the world. In Europe, it's expected to expand even further within the next five years, according to WindEurope's report released in September. *Wind energy in Europe: Outlook to 2022* estimates that in three years' time factors such as larger and more advanced turbines along with government incentives and increased industry competition will lead the continent to a cumulative installed wind energy capacity of 248-264 GW.

WindEurope, an organisation operating out of Brussels and which promotes and keeps tabs on all things related to wind energy, laid out in its report the European wind energy perspectives for the next five years, Q2 2018 through 2022. According to the report, Europe, while certainly competitive as the second largest wind energy market in the world, will still be far behind Asia with only half as many new installations by the end of 2022 (Fig. 1).

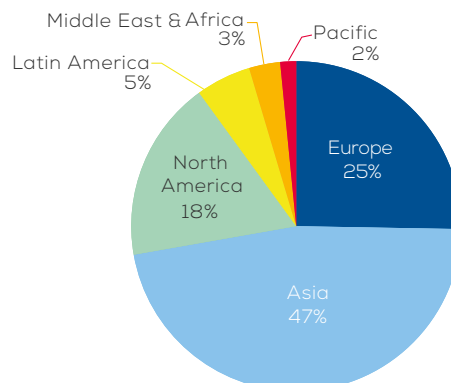
As of June 2018, European countries had a total of 182 GW of wind power capacity installed, out of which 165 GW was on- and 16.9 GW offshore. Some 71% of new wind energy capacity in Q1 of 2018 was installed in three European countries: Germany, the UK, and France. Europe-wide, the record year for new onshore installations was 2017, while 2018 is expected to show a small decline. In onshore installations, Germany, France,

and Denmark dominated the market, whereas in offshore installations, 2018 is also predicted to be weaker compared to 2017 and here the UK was way ahead of the game with 81% of Europe's new capacity installed.

The devil's in the government policy details

As part of the Clean Energy for All Europeans package, in 2018 the EU formally adopted the binding renewable energy target of 32% by 2030 with an "upwards"

Fig. 1. Net wind additions in 2018-2022



Source: WindEurope; Global Wind Energy Council's Global Wind Report 2017

revision clause by 2023. Additionally, the revised Renewable Energy Directive (RED II) was approved under the same package to improve its ability to boost private and public investment in renewables by increasing investor certainty; RED II, among other things, will simplify and streamline permit granting procedures, protect existing energy projects in case of policy changes, allow EU Member States to hold technology-specific auctions, and require countries to provide at least five years visibility reports on public support.

Many European countries have been moving towards market-based support schemes for renewable energy production, such as the feed-in premiums and the auction system. The former are already quite common in most of Europe, while the latter are now starting to take root. In 2017, “over 15 GW of capacity was awarded via competitive auctions (...); most of the awarded capacity came from Germany, the UK, Spain, Turkey, and the Netherlands.” Furthermore, zero-subsidy bids are entering the European market with Germany and the Netherlands taking the first steps and awarding six zero-subsidy bids in offshore wind since April 2017 (through July 2018). The WindEurope report points out that zero-subsidy bids are “an exception to the rule, rather than the new normal,” since competitive market and “scalability of offshore wind” are some of the market conditions necessary for investors and not all countries can provide that. At the moment, zero-subsidy bids are only possible in offshore wind projects due to issues with onshore farms such as numerous levels of government authorization required and territorial constraints. In the time period that covers this report, so between October 2018 and end 2022, 52 GW of auctions are already planned in 11 countries (split evenly between wind-specific and technology-neutral, which permits wind energy, projects), and more are very likely to still come before 2022.

Oldie but goodie

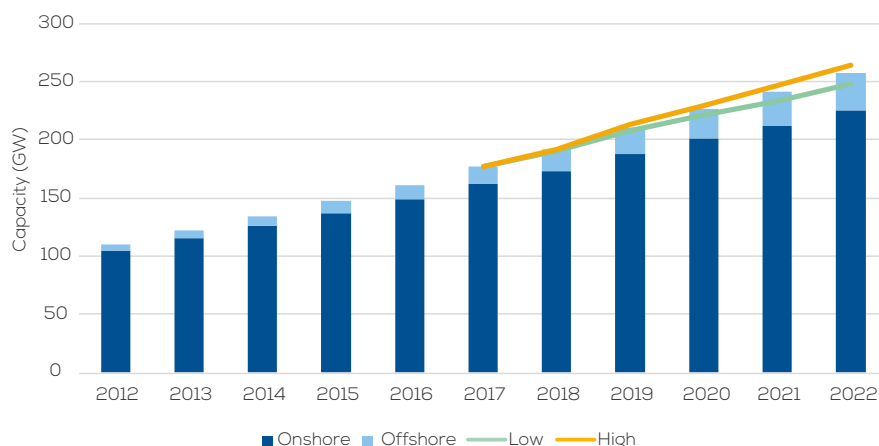
In some of the largest wind markets in Denmark, Germany, and the Netherlands, 635 MW of wind power was decommissioned in 2017, and the report estimates that within the next decade, many more wind farms will meet the same faith, particularly in Germany, Spain, and Denmark. Nonetheless, the areas where wind farms were initially placed are typically very good in terms of wind energy resources, so they are likely to be “repowered.”

On average, the lifetime of a wind farm is about 20-25 years. Replacing the older turbines, installed in the 1990s for example, can be very beneficial because



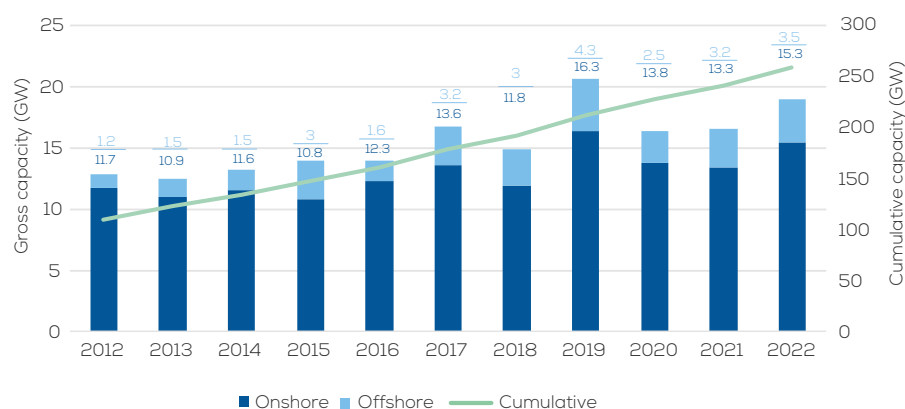
Photo: Siemens

Fig. 2. Expected cumulative installed capacity until 2022 in Europe – central scenario and the rate (low/high) of repowering existing installations



Source for figs. 2-6: WindEurope

Fig. 3. Annual gross installations in Europe – central scenario



the wind technology progressed significantly since then, and the more powerful and taller wind turbines can now produce much higher energy yields. However, right along with technology, regulation, too, has changed – the wind farms now have to be further away from living areas, for example.

These changes are now responsible for approximately 40% of decommissioning farms in Germany to be ineligible for repowering. RED II is promising to simplify the permit procedures for repowering and to shorten the process. “It is important to follow this up by stressing the need for a



repowering strategy in the National Energy and Climate Plans,” stresses the report.

Looking ahead

WindEurope considers three scenarios for the mid-term wind energy market outlook (Fig. 2). The central scenario (CS), which is the best estimate of the wind capacity in Europe in the next five years with 258 GW of cumulative capacity installed. The low scenario (LS) which is an estimate in which EU Member States take no further progressive action in wind energy, and the cumulative capacity is 248 GW. The high scenario (HS), in turn, sees Europe improving on the existing legislation, resulting in 264 GW of cumulative capacity installed. The report predicts that 2019 will be a new record year for wind installations, while 2020 will be the third best – behind 2019 and 2017.

The CS takes under consideration the pipeline of current wind energy projects and existing legislation in the European countries as well as the impact of the 2020 targets, long-term national targets, and upcoming auctions. In this scenario, 2018 is the weakest year out of the five, 2019 is the strongest, 2020 goes through a slowdown, but there is a steady increase in wind installations in 2021 and 2022. Cumulatively, Europe reaches 257.6 GW of installed capacity by the end of 2022 (Fig. 3).

As far as onshore installations are concerned, in CS they reach 70.4 GW between 2018 and 2022. Germany is leading with 18.5 GW gross additions (gross installations are new installations plus new capacity from repowered projects), France is in second place with 9.7 GW, followed

Fig. 4. Cumulative capacity in 2022 per country – central scenario

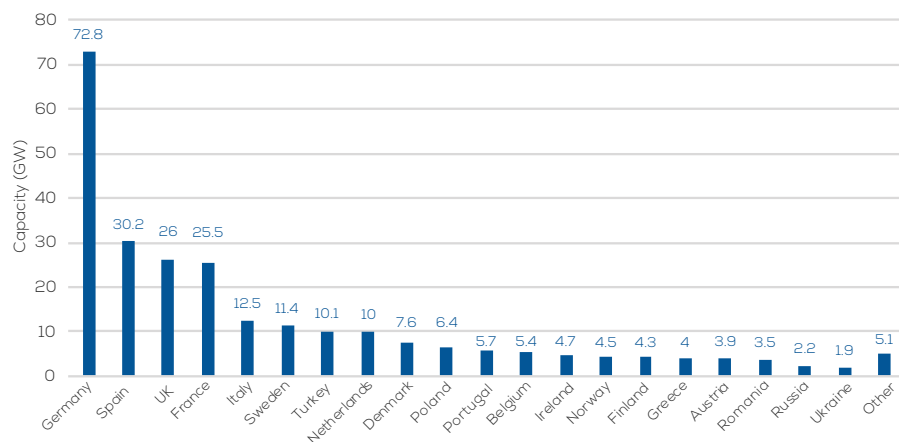


Fig. 5. Annual gross installations – low scenario

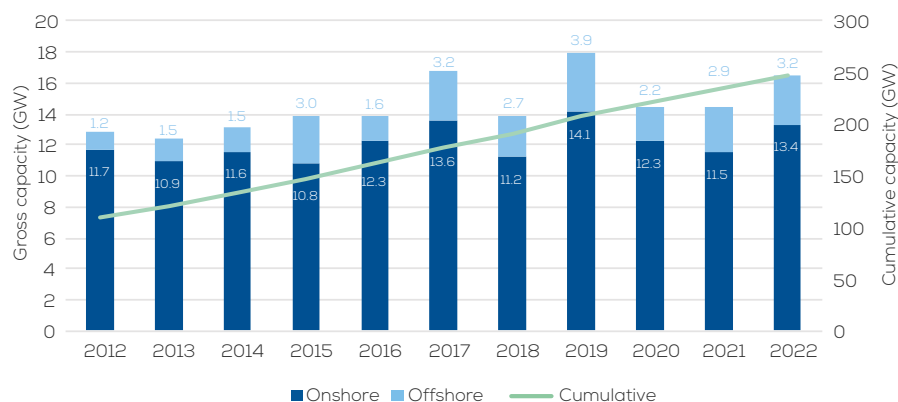
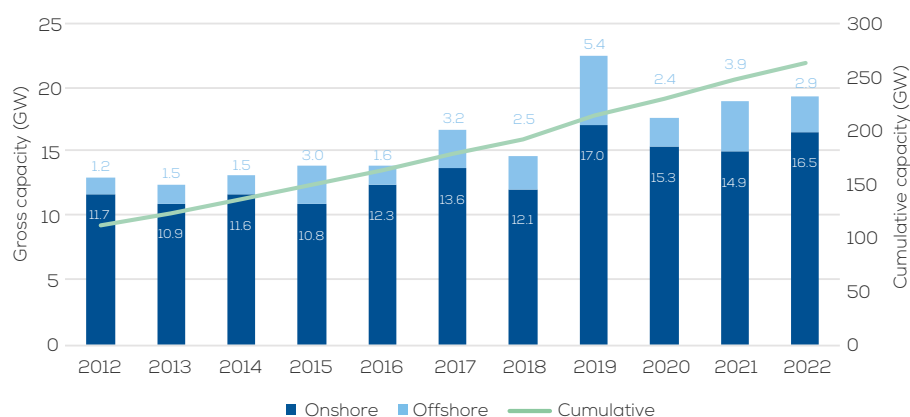


Fig. 6. Annual gross installations – high scenario



by Spain with 7.2 GW. In case of offshore installations, they reach an estimated 16.5 GW on the whole continent, and the UK market is dominant with 5.5 GW, Germany is second at 3.1 GW, with the Netherlands right behind at 2.7 GW.

In the five year period, cumulatively Germany still has the largest wind capacity of 72.8 GW, Spain comes in second, but with just half of Germany's capacity – 30.2 GW, the UK has 26 GW, and France 25.5 GW, meaning that 60% of the European wind fleet is concentrated in just four countries (Fig. 4). France and Benelux grow at the fastest rate from 13% of the market

share in 2017 to 27% in 2022. Central and Eastern Europe remain far behind, with 14 countries amounting to less than 5% of the market share combined.

In terms of the global wind energy market, under the CS, between 2018-2022 Europe's new installations amount to 25% of the market. The global wind market leader is still Asia, representing 47% of new global capacity while North America comes in third with 18%, Latin America – 5%, Middle East and Africa together – 3%, and Pacific – 2%.

Repowering causes some difficulties in terms of predicting future wind capacity. The report developed two scenarios – low



Photo: Ørsted

and high – for the rate of repowering of existing wind farms. The low scenario assumes that just 30% of the installed fleet will be repowered while the high scenario assumes that number at 50%. The prediction is that 10.4 GW of turbines will be decommissioned in the five year period, and in onshore repowering calculations, the report assumes that newly installed turbines will have a 20% higher capacity.

Glass half-empty vs. glass half-full

The LS assumes that there will be no improvements to the existing legislation in the European countries, which is especially damaging in nations that currently have no wind energy incentives or have troublesome regulation that discourages new installations. In the LS, “the permitted and already supported pipeline is built but unfavourable national policies for permitting and planning persist; this results in a slow pace of installations for existing permitted projects and a significant slowdown for awarding new projects.” Even in this pessimistic scenario, 2019 is a record year for new installations with 18 GW. The difference between low and central scenarios is a 9.3 GW drop in the five year period. The cumulative capacity in this situation is 248 GW in 2022.

In the HS, in contrast, European countries significantly improve the existing legislative framework related to wind energy. That allows for finishing the current project

pipeline and legislative improvements, like decreasing costs of installations and increasing auction volumes. All offshore projects are built according to their “best case scenario” schedules. The HS sees 6.3 GW more installations than the CS, with a cumulative capacity of 264 GW by 2022.

Naturally, all three outcomes will need investments in order to materialise. The report estimates that about €128-155b of investments in new assets will be needed by 2022 in Europe for wind energy (CS needs €145b). Financing was strong in 2018 and

the report estimates that 2021 could possibly be a record year for investments out of the five.

The bigger the better

In terms of technology, the wind turbine industry has one major (and obvious) goal – producing the most power from the wind in a given area. In this aspect, as usual, size matters. The American utility giant, General Electric (GE), for example, is working on a turbine, Haliade-X, with blades that are 351 feet-long (107 meters; that’s bigger



Photo: Ørsted

than an American football field). Haliade X will be the first one to generate 12MW of power in a wind turbine. Currently, one of the tallest turbines in the world, an onshore one in Germany, measures 809 ft (246 m; for comparison, the Eiffel Tower is 1,063 ft/324m).

As Haliade X illustrates, the enormous physical size of the turbines helps to produce more power. According to the WindEurope report, in Europe in Q2 of 2018 more than half of onshore turbines ordered were 4 MW or more, and WindEurope expects this trend to continue for the next five years. As a matter of fact, they predict that over 80% of the turbines installed between 2018 and 2022 will be 3 MW or higher. Offshore turbines are already in the 8-9.5 MW range, and by 2022, 10+ MW turbines will be introduced, according to “industry announcements.”

The height of the turbine and the length of the blades are certainly not the only factors that matter. The rotor diameter is also significant, and the recently ordered onshore turbines in Europe have rotor diameters ranging from 117 m (for high winds) to 158 m (for light winds). The size of the rotor has also been increasing faster than the size of the generator, allowing the turbines to produce energy in areas with low wind speed and to operate for longer hours. Together with the investment trend in taller turbines, to capitalize on areas with lower wind speeds, the new generation of the onshore wind turbines has much higher capacity factors than ever before.



Photo: Ørsted

The capacity of offshore wind turbines has also improved significantly in the last 10 years, which allowed for the exploitation of areas with high winds and extreme weather conditions. Offshore turbine rotor diameters are even larger than in onshore, ranging from 152 m to 220 m. As a result of the structural improvements, 10+ MW offshore turbines are expected to be common by 2022.

Bye, bye, fossil fuel?

Benefits of using renewable energy sources, including wind, are many. The renewable energy industry creates more jobs than the fossil fuel sector, and often times those jobs are in rural, remote areas that

really need the employment opportunities. These jobs are also healthier and safer than those related to fossil-fuel extraction. Additionally, the use of renewables instead of fossils improves air quality, benefiting public health and the environment – a crucial factor since pollution is one of the biggest threats to humanity today, according to the World Health Organization.

Wind power is – and it appears that it will continue to be – one of the fastest growing industries in the world as well as one of the most promising resources for generating clean, non-polluting, electricity. Was, therefore, Bob Dylan a prophet by signing already in the 1963, “The answer, my friend, is blowin’ in the wind.”? ■



Interview with Wim Stubbe, Business Development Manager, the Port of Oostende, and Emmanuël Timmermans, Business Development Manager, Renewable Energy Base Oostende (REBO)

Photos: Port of Oostende

Partnership delivers

by Przemysław Opłocki



Wim Stubbe Business Development Manager, the Port of Oostende



Emmanuël Timmermans Business Development Manager, Renewable Energy Base Oostende (REBO)

Situated in Belgium at the crossing of the English Channel and the southern part of the North Sea, Oostende is a versatile short sea port, accommodating all types of maritime traffic. Since 2008 it has also been closely involved in the development and operation of wind farms. To explore this business opportunity, a special purpose entity was founded - the investment company Renewable Energy Base Oostende (REBO). Subsequently, several projects have been realized at the REBO's terminal in Oostende, which, however, wouldn't be possible without setting up a know-how network of experts who integrate the port and wind energy industries. We are talking to Wim Stubbe, the man responsible for the Port of Oostende's business development, and Emmanuël Timmermans, his counterpart from REBO, about the already carried out initiatives and what they have in plans for the coming years.

- How would you sum up the year 2018 for the port of Oostende from the perspective of the wind energy industry?

Wim Stubbe: 2018 was a very successful year for the offshore wind industry, which translated into really good 12 months for the Port of Oostende itself. We witnessed, for example, the installation of a new wind park over the summer time. At the same time, the port was busy as other farms were undergoing maintenance while standard operations proceeded as usual. In short, we had our hands full, a thing to be pleased of.

- This year, the special-purpose entity REBO is celebrating its 10th anniversary. The

company was set up in order for Oostende to fly, so to speak, on the European/North Sea energy boom. What do you make of this decade – what was the most successful victories REBO won since 2008, as well as the biggest challenges the company had to face throughout this period of time?

Emmanuël Timmermans: From the earliest stage of REBO's existence, we have always sat together and talked with the developer and our customers to find out what their actual needs were. And we were all the time prepared for extensive discussions. Thus, before all the works, we were thinking together of all the details, even the offices, warehouses, quay sides, but also of new methods



of loading and unloading. And I think this is the signature strength of REBO and the Port of Oostende, namely from the very beginning we have always closely cooperated with our customers on all projects. Such an attitude is very typical for REBO and the port. Obviously, we have also made a lot of investments so that our clients feel welcome and satisfied.

- **In turn, what is the outlook for another 10 years? As far as the research and development is concerned, on what sorts of innovation has Oostende been working for the last couple of years?**

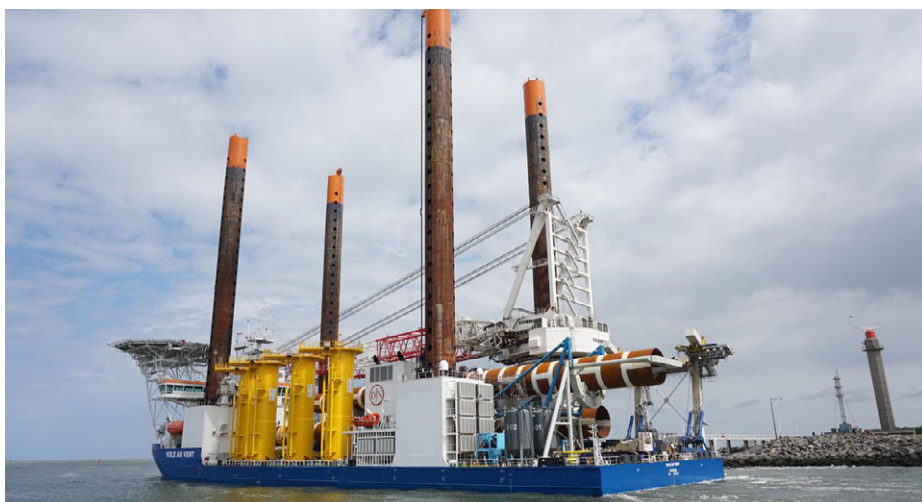
ET: At present, we have eight wind concessions on the Belgian coast. All of these projects will be realised, new wind farms will be built and become fully operational in the near future. This will of course require a lot of service works of the wind turbines, so we will need to focus on operations and maintenance activities. There will also be some important investments made in infrastructure, which will include, among others, new pontoons with utilities and cranes for service vessels, new offices, warehouses, or special storage areas.

And apart from this, we also consider realising commissioning jobs.

WS: I'd like to add that both REBO and the Port of Oostende are more and more looking outside, too. I think we can work together and develop offshore wind energy projects outside Belgium, in such regions as the Baltic and the Mediterranean seas, or off the Atlantic coast. Since we have already gained a considerable experience and cooperate with important market players, there's a chance to use and develop this experience all over the world.

ET: We have already been asked by some ports in the US to give them some assistance. There are prospects for future operations in the Port of Taiwan and across Indian harbours. As a matter of fact, the offshore wind market is still quite similar there, because the technology solutions still originate in Europe, at least for the time being.

WS: I think one of the most important innovations we've been working on for some time now, together with other ports, is improving the loading and unloading methods by incorporating



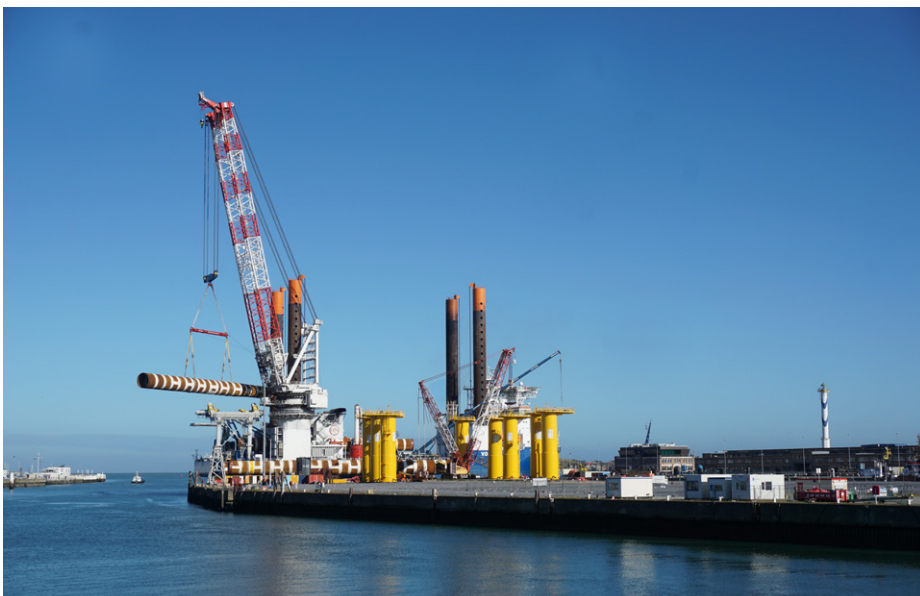
various technologies from other sectors to see whether they fit offshore activities.

- **However valuable, the wind energy industry is just one of the elements of a wider trend aimed at making Europe's economy more sustainable. What role Oostende plays in this development?**

WS: Most importantly, our port is playing a role of a founding father of the Offshore Wind Ports Platform by means of which we're trying to connect different ports from across different countries in order to be more efficient. The platform gathers the knowledge and experience of several European ports active in the offshore wind industry. It's an opportunity to exchange best practices and relevant know-how as well as to jointly discuss opportunities and challenges that ports face as the offshore wind industry grows. It is truly a very valuable cooperation, bearing in mind that if we passively stand by, tomorrow the Chinese will be here with their enormous capacity, money, technology, etc. So we simply can't fall behind but instead need to keep up the good work by co-operating over country borders. Concentrating solely on national markets is the most stupid thing we could do at the moment. To join forces within Europe is essential now.

- **What is of paramount importance when it comes to developing the offshore wind industry – people, money, timing, planning?**

ET: Well, I think all these elements are of great significance. That said, we cannot forget that the legal framework is also crucial, as it's the base for the whole thing to start in the first place. In other words, if there's no legal framework – which means there's no way in which concessions can be granted – there is no wind market. Naturally, money's important, too, but I wouldn't say there're any serious problems with securing the financing for a wind farm project. You can virtually find investors all over the world. Producing energy from wind is a multidisciplinary business, so to say, heavily dependent on technology, which is a good thing, as the tech industry is blooming these days. As an effect, there's demand for innovation and many parties are interested in cooperation in order to make the whole joint work and bring profits. Fortunately, the risk factor is lower today than it used to be in the past and it's going down further.



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