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Subsea drilling template

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04 MONOPILE COVER

Different Dutch parties joined forces and developed a construction consisting of fiber reinforced panels as a reusable MP cover for Vattenfall's offshore wind farm Hollandse Kust Zuid.

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10 SUBSEA DRILLING TEMPLATE

Mid-August Breman Offshore delivered a unique subsea drilling template, ready for testing purposes in the Bay of Saint-Brieuc, France. The complicated construction was built and assembled in only four months.

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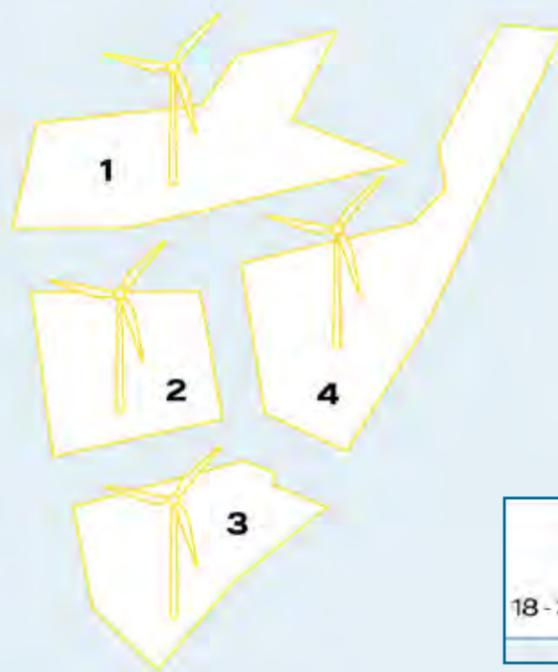
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VATTENFALL'S OFFSHORE WIND FARM HOLLANDSE KUST ZUID



Wind farm Hollandse Kust Zuid



Hollandse Kust Zuid 1 - 4
 Total 1,500 MW
 2 to 3 million households
 18 - 36 Kilometers distance from the coast
 Courtesy of Vattenfall



Between 18-36 kilometres off the Dutch coast, Vattenfall's offshore wind farm Hollandse Kust Zuid (HKZ), meaning Dutch Coast South, will arise. In June 2021 the construction of this wind farm, which will become world's largest, will start. With 140 11MW wind turbines, the wind farm will produce enough fossil free electricity to cover the consumption of over two million households. This enormous project, Vattenfall is trying to realise in the most environmentally friendly way.

Monopile cover

One of the aspects Vattenfall wishes to improve in this project, is the sustainability of the monopile (MP) cover. This is a device which protects the inside of the monopile, once it has been installed in the seabed, and specifically the airtight platform which is situated 1.2m underneath the top, inside the monopile. The monopiles in this project will not be equipped with transition pieces but will make a direct connection with the turbine tower. Every monopile will therefore be equipped with a flange through which it will be bolted together with the turbine tower. All secondary steel such as ladders and platforms will be hung on the monopile.

Offshore workers will use the airtight platform for among other things, the pull in of inter array cables. The MP cover which will be placed on top of the monopile and will protect them during their job.

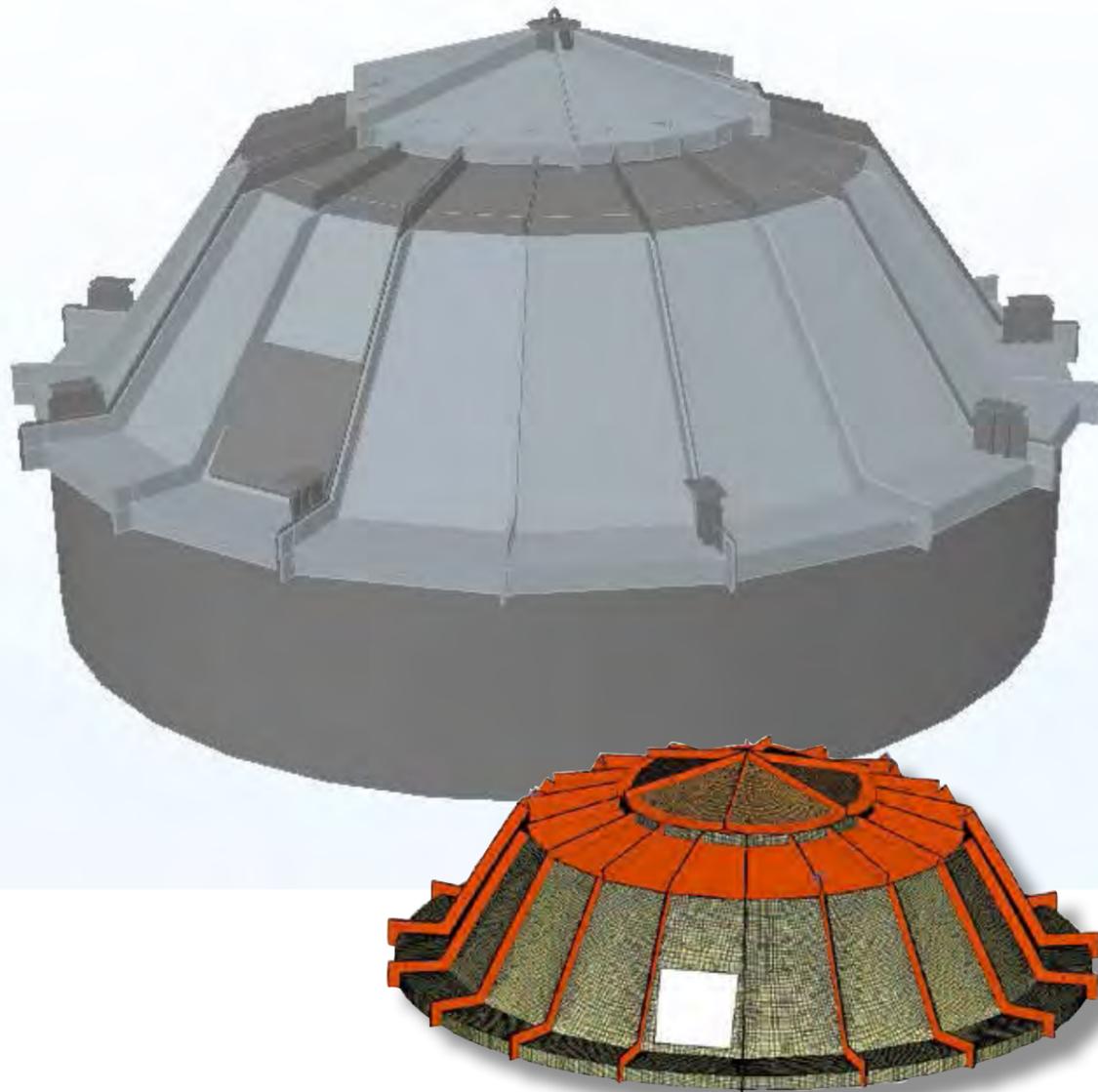
Safe and healthy

Without a cover, the work platform inside the monopile can become wet and slippery from rain or splash water and soiled by bird faeces. It is essential for Vattenfall to ensure a safe and healthy working environment for all offshore workers. Therefore, a cover was an absolute requirement. As to functional specifications, the cover needed to be water- and dirt tight to prevent any chance of mould growth and condensation on the inside of the monopile above the airtight platform. With regards to environmental aspects, the cover had to be reusable or easy to recycle to minimize the environmental footprint.

Covers up to today

Up to now three types of covers have been used on monopiles by the offshore industry. Tent covers, steel- and aluminium covers. All three have disadvantages. Tent covers are not suitable in wintertime. At high wind speeds there is a risk that they are blown away, contaminate the sea and leave the monopile unprotected. The steel and aluminium covers are quite expensive and the recycling process of the cover requires a lot of energy again with aluminium being the top energy consumer. As monopiles often differ in diameter per project, none of the steel or aluminium MP covers have been reused on a new project up to today.

Dutch teamwork leads to smart & sustainable monopile cover



Courtesy of Femto.

Ingenious birthday cake

With Vattenfall's sustainable mission in mind, they asked Sif - who was granted the fabrication of the monopiles - to come up with a smart and environmentally friendly solution for the covers.

Quickly the ball started rolling and different Dutch parties joined forces.

Stimulus programme 'Kansen voor West (KvW)' meaning Chances for West, polyester manufacturer Theuus and engineering company Enersea started brainstorming and together developed the first concept that resembles an ingenious birthday cake.

The construction consists of different fiber reinforced polyester panels and looks a little bit like pieces in a pie. 'It was not the first material we thought of', Christian Larsen, project engineer for Vattenfall at HKZ, admits. 'But we wanted a new and sustainable concept and gave our subcontractors the freedom to come up with a new concept, both in terms of construction as well as in material choice.'

The composite panels are connected to each other with metal strips

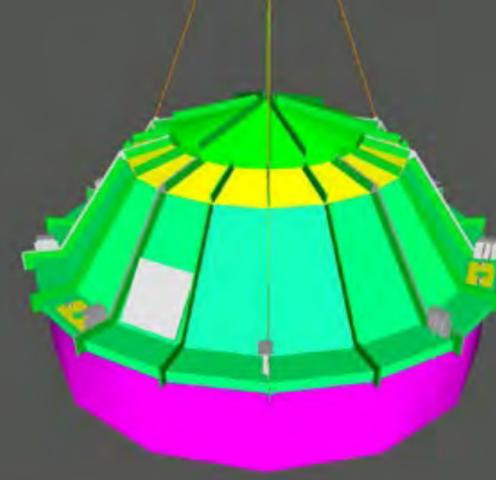
and bolted together. Hatches for entering the monopile are also included in the cover design.

Nine strongpoints with a working load limit of 0.5 tonnes are included at the underside of the MP cover that allow the cable contractor to fixate its cables. The strongpoints are located 2m from the MP flange and equally distributed across the entire circumference. The strong points can be loaded to a maximum of six adjacent strongpoints with a maximum of 500 kg each. The cover will have three lifting points and the possibility to install a tripod for cable pull in works.

Furthermore, the design of the MP cover will be optimised in such a way that it avoids opportunities for bird nesting on the MP cover.

Reusable MP cover construction

The idea behind the different panels is that you can reuse the top panels of the cover for every diameter of offshore monopile which is currently on the market. Top diameters of monopiles typically vary between 6 and 8m and the concept perfectly matches for those diameters. The MP covers can be tailor made by using longer or shorter parts on the slope in order to adjust to the exact diameter of the



Courtesy of Enersea.

'We wanted a new and sustainable concept and gave our subcontractors the freedom to come up with a new concept, both in terms of construction as well as in material choice.'

Christian Larsen, project engineer Vattenfall



Functional inspection at Theuus yard.



Mock up testing at Sif terminal Maasvlakte 2 Rotterdam.

monopile in a next project. Also the number of hatches can be tailor made for each project. It is just a matter of exchanging panels. The panels can easily be dismantled and transported by sea container all over the world for a next project. Moreover the panels have a lifetime of 10 years. At the end of their life, they can be ground to granulate and used for example as filling material in concrete.

Enersea asked colleague engineering company Femto to carry out the Finite Element Analysis as Femto is more specialised in strengths calculations on composite materials.

Subsidy

Spokesman Wim Joosten of the Kansen voor West (KVV) programme explains the reason of their involvement and grant for this project: “The KVV programme is a cooperation of the four Randstad provinces (Noord-Holland, Zuid-Holland, Utrecht and Flevoland) and the four major cities in this area, aiming to stimulate innovation and the creation of new jobs. KVV is like a liaison party trying to strengthen the competitive power of the region by bringing parties and opportunities together and subsidise new innovations such as the development of this composite MP cover. Offshore wind farms could become an interesting new market for the regional composite industry in the North Western part of the Netherlands and with a first innovative project we can show this to the offshore wind industry.” Because of this potential, the province of North Holland itself, has given a substantial grant as well, on top of the KVV programme.

This regional aspect is also important to Vattenfall. “Even though Vattenfall is a European player operating in a highly competitive and

globalized market, we are always open to opportunities to add local content to projects and create benefits for the local community,” Christian Larsen of Vattenfall adds. “As the complete HKZ offshore wind farm will be built without any governmental financial support, the subsidy for the MP cover enabled this innovative design. Without it, it would not have been possible.”

The KVV programme receives its funds for the larger part from the European Regional Development Fund, in the Netherlands better known as Europees Fonds voor Regionale Ontwikkeling (EFRO).

Prototype

Enersea, Femto and Theuus developed the detailed design which led to a first prototype. At the Theuus yard in Wieringerwerf a functional inspection and water test was carried out with positive results mid-June 2020.

At the end of June further tests took place at Sif’s terminal at Maasvlakte 2 in Rotterdam. This time the cover was mounted on a mock up monopile so the complete construction could be tested on functionality, load resistance, water tightness and several other aspects. Also here the test outcome was very promising. Vattenfall will start the construction of HKZ in June 2021. Less than a year to go to optimise this MP cover prototype, get into serial production and have the first 41 covers ready for installation. An exciting challenge all Dutch partners in this project are eager to tackle together with client Vattenfall.

Original article written by Marika van Pol.

TOTAL’S TYRA REDEVELOPMENT PROJECT



Allseas completes topsides removal scope

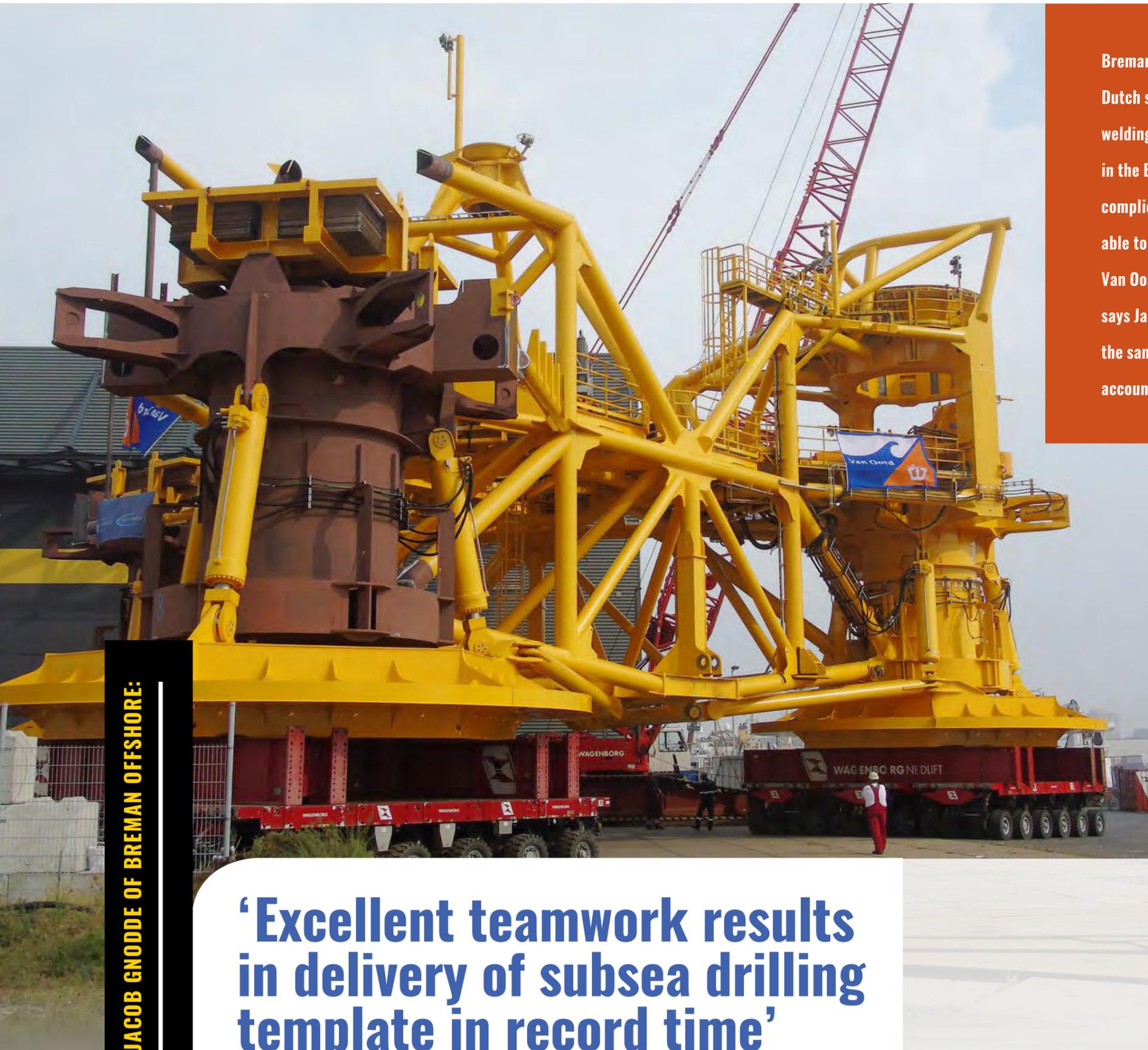


Allseas’ heavy lift vessel Pioneering Spirit has completed a successful processing and accommodation topsides and flare jackets removal campaign as part of the Tyra Redevelopment Project for Total E&P Denmark.

Early August Pioneering Spirit removed more than 27,000 tonnes of platform facilities from the North Sea’s Tyra gas field, transporting the structures to specialist yards in Denmark and the Netherlands for recycling.

The final two structures and flare jackets were transferred from the Pioneering Spirit to a cargo barge for load-in to the Sagro yard in Vlissingen, the Netherlands. The two processing and accommodation topsides and connected facilities were delivered in two earlier trips to the M.A.R.S. recycling yard in Frederikshavn, Denmark.

Structures were removed one-by-one in a time-critical sequence of lifts that required Pioneering Spirit to cover hundreds of miles between Denmark, the North Sea and the Netherlands during the two-week execution window.



JACOB GNODDE OF BREMAN OFFSHORE:

‘Excellent teamwork results in delivery of subsea drilling template in record time’

Breman Offshore can add another daring feat to its impressive reference list. Mid-August the Dutch specialist in the use of thick sheet material, thick steel, deformation, bending and welding, delivered a unique subsea drilling template to Van Oord, ready for testing purposes in the Bay of Saint-Brieuc, France, in September 2020. “Within four months, we built this complicated construction and assembled same here in IJmuiden. A performance that we were able to achieve thanks to excellent teamwork and a fantastic collaboration with the client Van Oord, other contractors involved and Zeehaven IJmuiden, the local port authorities,” says Jacob Gnodde, responsible for sales and projects. Acting as one team, striving for the same goal. It is precisely this team culture that created the necessary trust, accountability and high performance for this exceptional project.

“Short delivery times combined with the highest possible quality are the inherent strengths of Breman Offshore,” explains Gnodde. “We are not manufacturers of series work; instead we produce unique items, such as this subsea drilling template. More and more our clients are now asking us to execute these type of complex turnkey projects, often in close collaboration with the customer and contractors appointed by them. In this particular case Van Oord contracted TWD to execute the complete design, Hydac for the hydraulic drive systems and MSA Service for tailor made solutions the field of electrical and automation. Together with the Van Oord project team we formed a fine-tuned, well-oiled production machine with the common goal to produce, in time, a reliable and durable drilling template.”

Contract

Early May, 2020, Ailes Marine, in charge of the development, construction, installation and operation of the offshore wind farm in the bay of Saint-Brieuc, selected marine contractor Van Oord to transport and install 62 jacket foundations (steel lattice structure) and the foundation piles for the offshore substation. The Saint-Brieuc Offshore Wind Farm is being constructed in the Bay of Saint-Brieuc in Brittany, 16,3 kilometres off the coast. When finished, the wind farm with a total capacity of 496 MW will produce 1,820 GWh annually, equivalent to the annual electricity consumption of 835,000 inhabitants. Van Oord will start the offshore operations in 2021 with the installation of the pin piles using its offshore installation vessel Aeolus. A labour-intensive job as the Aeolus first has to lower the specially designed drilling template to the seafloor to guide the piles into the seabed. Once in position, the boor-casing including a drilling subsystem will be installed into the template, Van Oord has to drill three holes to the correct depth whereafter the pin piles will be installed and grouted in the bored holes at each of the 63 locations. After removal of the template each location is ready for installing the jacket foundations.

In December 2019, Van Oord was already awarded an Early Works Contract to expedite the design and engineering activities. Construction on the subsea drilling template by Breman Offshore started mid-April this year. If everything goes according to plan the wind farm will be fully commissioned in 2023.



Pictures: Frits Houtgraaf, IJmuiden.



After final completion, the unique subsea drilling template will be placed on board the Aeolus to start the Saint-Brieuc project in 2021.

Sales

Jacob Gnodde joined Breman five years ago. He started as a project manager, and barely a year later the Breman management made a proposal to join the sales department. Securing new orders is not always easy, Jacob has now experienced, but partly thanks to the support of his colleagues, he can look back on the past four years with satisfaction. The highlight of his still young sales career is the acquisition of the above-described assignment from Van Oord. The official order was signed at the end of March 2020 and Breman Offshore already started in the third week of April with the actual construction of the template designed by TWD, which should not weigh more than 1000 tonnes in its entirety.

Due to limited production time, it was decided to produce several components of the template simultaneously. For the production of the main frame steel grade S355 was used, while the three ILT cans, the Ball Grab Interface and three Constraining Road Connections are made of S690 high strength structural steel plates. After delivery of all components at the yard of Breman Offshore in IJmuiden, Breman and the other contractors started with the assembly of the complete template. "It was an intensive period, in which our team had to pull out all the stops to keep the project running smoothly," tells Gerben Jager, foreman of the assembly team. "The production of the template had to start already, while the design was still ongoing, requiring flexibility from all contractors involved. For the various contractors the short time available for design and fabrication was quite a challenge. But the production and assembly process went smooth, our people kept a cool head and managed to maintain the necessary drive for all parties. Despite sometimes quite difficult circumstances, all components were delivered here in IJmuiden at the agreed time for the final assembly. A top performance has been achieved thanks to the unbridled efforts of all parties."

Mid-August the subsea drilling template was ready to be loaded onto the Bokalift 1, berthed at the quay right in front of Breman Offshore's own in- and outdoor assembly facility, with an open connection to the North Sea. The crane vessel was subcontracted by Van Oord to carry out a drilling trial campaign in the Bay of Saint-Brieuc in September. The reason for this campaign is to test the drilling equipment in order to optimise future construction work and limit the environmental impact of the work. After some preparatory work on board the Bokalift 1, the vessel left for the French coast on Sunday August 23.

Finishing touch

If everything goes according to plan the Bokalift 1 will return at the end of September. The template will be offloaded for further modifications and the so-called finishing touch. The template used for the drilling test is equipped with only one complete pocket system, while the final version gets two more for the three legged jackets to be installed. In addition, the template still needs to be equipped with a lift off system that is still under construction. Finally, Breman Offshore has to supply installation aids for the installation of pin piles for the substation, which has a four legged jacket.

CEO JARAND RYSTAD ABOUT FUTURE OF OIL & GAS:



Jarand Rystad,
Rystad Energy CEO.

‘2022 and 2023 will be very hectic’

Rystad Energy is one of the world’s leading experts in the Oil & Gas sector. As all parts of the industry take stock of the damage done by the Covid-19 pandemic, founder and CEO Jarand Rystad recently discussed his vision for the future of Oil & Gas.

Jarand Rystad is quite straight when it comes to the impact of Covid-19 on the Oil & Gas market. In his view the whole world has put a stop to airline and car travel in a coordinated way, and as a result the market is experiencing its biggest contraction ever.

“April saw a contraction of 28 million barrels of oil, which is ten times more extreme than the most extreme situation we’ve seen before. Depending on the degree of lockdown from region to region, road traffic fell between 20% and 70% in April. Aviation was down even more sharply - in May there were 28,000 flights per day, against around 115,000 per day that had originally been projected.”

“At the same time, a fall in global GDP brought down demand for oil used as energy and as a raw material in manufactured goods. With lockdown ending in most countries, road traffic should return to around 90% of pre-pandemic levels within as little as four months, but it will not rise higher for some time. Aviation will take much longer to return to something like normal. By the end of 2020, it will only be at about 35% of pre-crisis levels at best. There will be very little international air travel, but domestic air routes in China, India and the US will gradually drive the comeback.”

According to Rystad the crisis will surely accelerate the energy transition of oil companies. He believes it will have a positive impact overall, but the first impact will be negative, on account of delays to ongoing projects and to

public auctions for the land needed for acquiring land for renewable power plants. While oil is priced in dollars, power is usually priced in local currencies, so questions of profitability arise. “For these reasons, renewable energy projects are being held up and delayed. But two years from now, cost improvements for renewables compared to fossil fuels will be much better, and the current situation will end up benefiting the green shift.”

“I think when the price per dollar reaches about \$50 to \$55, the industry will start investing again,” said Jarand Rystad, when he was asked to give his view on the main trends and strategies in the development of the Oil & Gas sector by 2025. “This will happen in about a year from now, well into 2021, and then I think that in 2022 the oil price will go significantly higher. By 2022 and 2023, I think there will be very hectic times for oil and gas companies, with good prices and lots of activity. However, but it’s possible that high prices will kill demand: if gasoline prices rise too sharply, people are more likely to choose electric vehicles. All the same, I think oil and gas companies will experience a good period, but then the boom will be followed by a bust – it’s usually four years from boom to boom, or from bust to bust. The majors will manage fine. They’re embracing the energy transition more and more – even the Americans are talking about it. The majors increasingly have the ambition to position themselves as energy companies, with the benefits of familiar brands and proximity to end-users. Smaller companies will benefit from just having a harvest strategy - limit costs, harvest what you have, do less exploration.”

‘Two years from now, cost improvements for renewables compared to fossil fuels will be much better, and the current situation will end up benefiting the green shift.’

Jarand Rystad, Rystad Energy CEO

CONSORTIUM COMPRISING SHELL AND ENECO

CrossWind, a consortium comprising Shell and Eneco, is going to build and operate the third unsubsidised wind farm in the Dutch North Sea, in the Hollandse Kust (noord) Wind Farm Zone (HKNWFZ). The wind farm will have a capacity of over 750 MW and its construction will mean that by 2023, offshore wind power will provide 16% of the Netherlands' electricity needs.

CrossWind to build third unsubsidised Dutch offshore wind farm

In 2016, Blauwwind (comprising Shell and Eneco) was awarded the permit to build and operate sites III en IV in the Borssele Wind Farm Zone. This wind farm is currently under construction.

Innovative applications

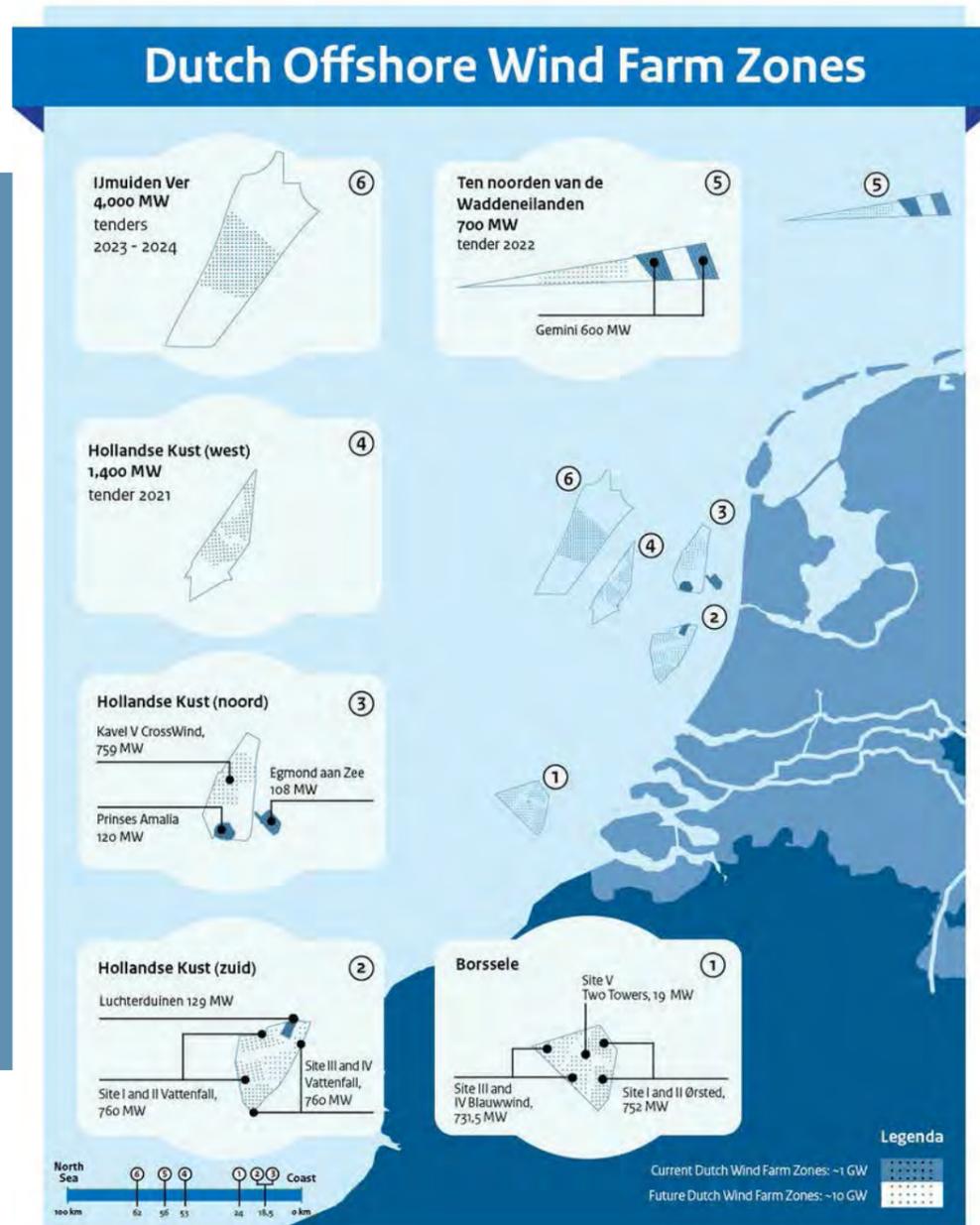
During the assessment of the tenders for this wind farm permit, one of the aspects focused on was the use of innovative applications. CrossWind will test a variety of innovations in the field of energy storage and flexibility, with the possibility of rolling them out on a larger scale at other wind farms in the future.

Siemens Gamesa turbines

The Hollandse Kust (noord) Wind Farm Site is located around 18.5 km off the coast of the province of North Holland. CrossWind will install 69 Siemens Gamesa wind turbines, each with a capacity of 11 MW and a rotor diameter of 200 m, the majority of which will be situated over 1 km from each other. The electricity cable connecting the wind farm to the offshore 'power socket' will be installed by the transmission system operator TenneT.

In principle, the space between the turbines is available for alternative uses, provided these are compatible with the wind farm. Wind farms provide numerous opportunities for development of the natural underwater environment: once the wind turbines have been installed, a wind farm will be a calmer place for underwater flora and fauna and new marine life will be able to settle on the foundations of the wind turbines.





Balance of Plant

Van Oord confirms that it has been contracted for the Balance of Plant scope. As Balance of Plant contractor, the company's activities encompass the engineering, procurement, construction and installation of the foundations, inter array cables and transportation and installation of the wind turbines. Van Oord will deploy its offshore installation vessels Aeolus, MPI Adventure and MPI Resolution and cable-laying vessel Nexus.

Other wind farms

In the years to come, more offshore wind farms will be built and the amount of electricity they supply will increase substantially. The Dutch offshore wind farms currently have a combined capacity of around 1 gigawatt (GW), which will increase to nearly 2.5 GW by the end of this year. By 2023, total offshore wind capacity will have reached 4.7 GW, which would mean the objective for offshore wind energy from the Energy Agreement would be achieved within budget and on schedule. By 2030, total capacity will increase further to 11 GW, which represents 40% of the total demand for electricity in the Netherlands.

TENNET RECEIVED THE 'GRID READINESS' CERTIFICATION FROM DNV GL

Offshore grid connection Borssele Beta ready to land offshore wind power

Borssele Beta, TenneT's high voltage connection for offshore wind farms Borssele III, IV and V is ready for use. Blauwwind (Borssele III & IV) and Two Towers (Borssele V) can connect the wind turbines to the high voltage grid one month earlier than planned. TenneT has realised the entire Borssele project within schedule and budget.

TenneT received the 'Grid Readiness' certification from DNV GL for Borssele Beta in July 2020. This means that this offshore grid connection complies fully with the conditions set out in the so-called Offshore Wind Energy Development Framework.

The Borssele III, IV and V wind farms will have a total capacity of 700 megawatts (MW), which is equivalent to the electricity consumption of around 1 million households. The electricity generated by the wind turbines is collected at sea at a transformer platform (wall socket). The voltage is converted from 66 kV into 220 kV. The electricity is then transported to land via cables in the seabed and is landed at an electrical substation at Borssele. At this station it is converted into 380 kV. Finally, the electricity is transported to the high voltage grid. TenneT is investing in upgrading the 150 kV grid in Zeeland and the 380 kV connection between the Borssele and Rilland high voltage substations to secure the transport of higher volumes of sustainable energy in the future.

Offshore wind energy to 2023

By the end of 2023 TenneT will have constructed 3,500 MW offshore grid connections for offshore wind farms. The first 1,400 MW has been realised with the delivery of Borssele Alpha and Beta. It will then be the turn of Hollandse Kust (zuid) Alpha and Beta, followed by Hollandse Kust (noord). TenneT is using five identical 700 MW transformer platforms for these wind farms. These platforms are located close to the wind farms and all five use the same type of 220 kV cable connection to the coast. Such standardisation enables TenneT to complete these projects more efficiently, more quickly and more economically.

Offshore Grid Programme 2024-2030

According to the Follow-up Roadmap for Offshore Wind Energy, a further 6.1



GW (6,100 MW) of offshore wind farms will be built from 2024 through to the end of 2030. These wind farms will be located in the wind energy areas known as Hollandse Kust (west), Ten Noorden van de Waddeneilanden and IJmuiden Ver. For the first two, TenneT will again be using three standardised 700 MW platforms (2.1 GW). The efficient connection of wind energy areas further out into the North Sea, such as IJmuiden Far (4 GW), will partly require other technologies that use direct current instead of alternating current. IJmuiden Ver will have two offshore converter stations, each with a capacity of 2 GW, which is unique in the offshore wind industry.

Offshore grid connections Germany

In the German part of the North Sea, TenneT's 7.1 GW current connection capacity already exceeds the German government's target for 2020. This target has been set at around 6.5 gigawatts for the North Sea and the Baltic Sea together. Until 2030, TenneT's offshore grid connection capacity in Germany will be increased to around 17 GW.

COBALT HAS ATTRACTED PARTICULAR ATTENTION IN RECENT YEARS

Deep-sea minerals could meet demands of battery supply chains - but should they?

The world is hungry for resources to power the green transition. As we increasingly look to solar, wind, geothermal and move towards decarbonization, consumption of minerals such as cobalt, lithium and copper, which underpin them, is set to grow markedly. One study by the World Bank estimates that to meet this demand, cobalt production will need to grow by 450% from 2018 to 2050, in pursuit of keeping global average temperature rises below 2°C.

The mining of any material can give rise to complex environmental and social impacts. Cobalt, however, has attracted particular attention in recent years over concerns of unsafe working conditions and labour rights abuses associated with its production.

New battery technologies are under development with reduced or zero cobalt content, but it is not yet determined how fast and by how much these technologies and circular economy innovations can decrease overall cobalt demand.

On the other hand, concerned scientists have highlighted our limited knowledge of the deep-sea and its ecosystems. The potential impact of mining on deep-sea biodiversity, deep-sea habitats and fisheries are still being studied, and some experts have questioned the idea that environmental impacts of mining in the deep-sea can be mitigated in the same way as those on land.

In the face of this uncertainty, the European Parliament, the prime ministers of Fiji, Vanuatu, Papua New Guinea and more than 80

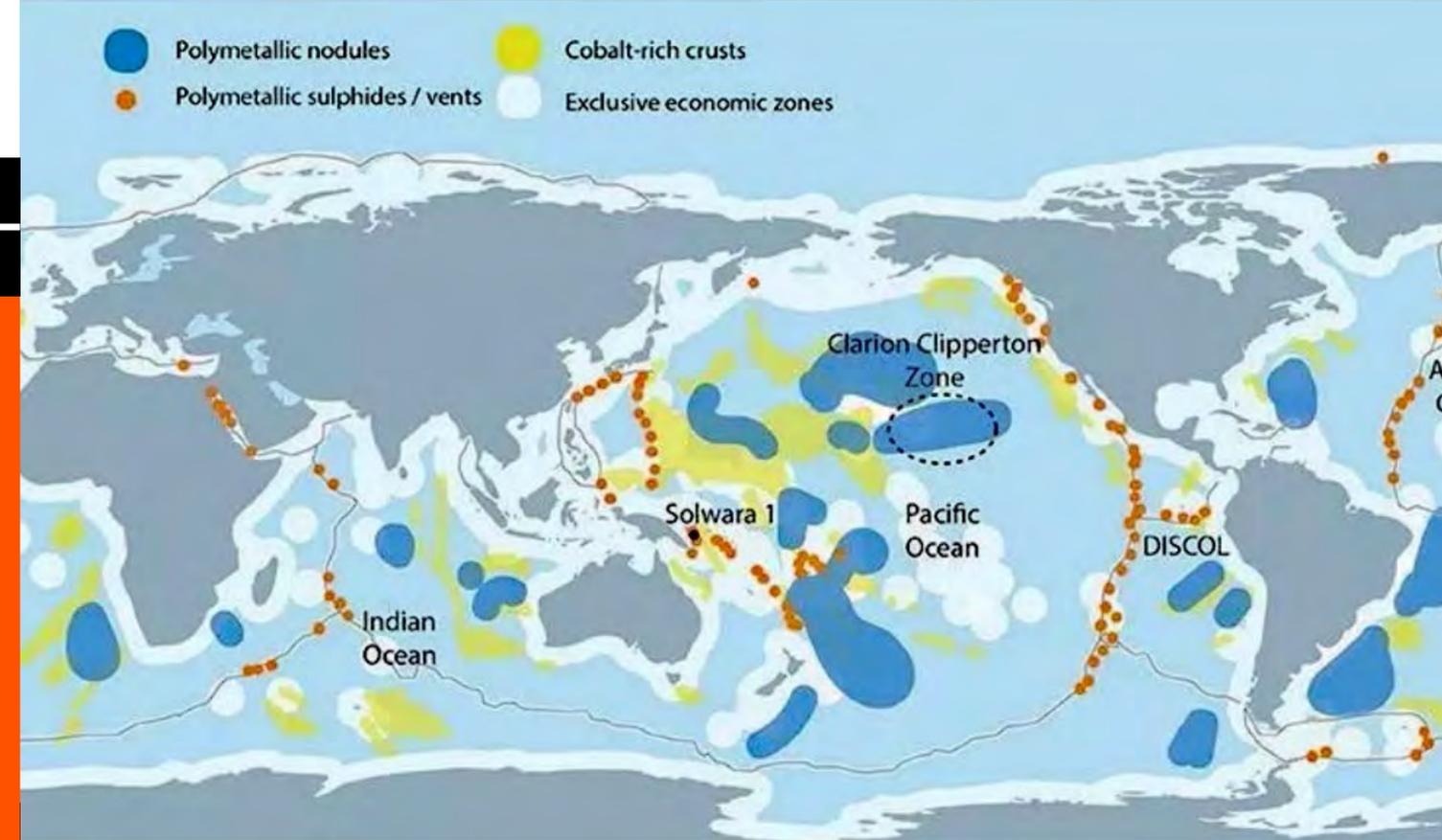
organizations have called for a 10-year moratorium on deep-sea mining, until its potential impacts and their management methods are further investigated.

Stark choice

The world is facing a stark choice, whether to press ahead with mining the ocean's floors, hoping that the benefits will outweigh the as-yet-unknown environmental costs, or whether to pause for research and better understanding of what's at stake.

The International Seabed Authority was established to organize, regulate and control mining on the ocean floor beyond national boundaries. Its regulations determine environmental regulations, financial payment regime for benefit sharing and other standards and guidelines.

The International Seabed Authority has already drafted exploitation regulations for deep-sea minerals, which will be decided upon at either its October 2020 assembly or its 2021 assembly. Once regulations



are finalized and adopted by member states, seabed exploitation contracts could be issued for mining to begin.

In parallel, countries that have mineral deposits in their exclusive economic zones, where the country has the unique right to use the marine resources, are also exploring mining techniques and forming their own regulations. Japan successfully trialled extraction of minerals from the deep-seabed as early as 2017, with the aim to reduce reliance on mineral imports. Cook Islands is also considering granting prospecting licenses in 2021 to diversify its economy from tourism.

Governments and seabed mining companies have been exploring mineral content, measuring deep-sea environmental data and testing seabed extracting technologies for more than 30 years.

Not afford to wait

Automotive, electronics, battery, aviation and energy development companies have largely been silent in the deep-sea mining debate, up to now. But deep-sea mined cobalt could enter their supply chains within a decade.

As was demonstrated to Apple, Google, Microsoft, Dell and Tesla in 2019, the ethical dimensions of companies' raw material sourcing choices can have both reputational and legal consequences. That year, a federal class action lawsuit was brought against the five companies, over their alleged use of cobalt produced through child labour in the Democratic Republic of Congo.

The ethical dimensions of deep-sea cobalt mining have the potential to be just as contentious, and could pose no less a legal and reputational risk for manufacturers.

Meanwhile, automotive and electronics manufacturers are increasingly acknowledging the strategic importance of their cobalt sourcing decisions. BMW, Tesla, Samsung SDI, SK Innovation have begun bypassing their suppliers of manufactured parts to sign direct sourcing contracts with mining companies that are traditionally many supply chain tiers removed from their procurement departments. For these manufacturers, access to a stable, ethical supply of cobalt is more important than ever. As they increasingly source metals directly, the need to be knowledgeable on environmental and social considerations of their various supply options also grows greater.

Rare opportunity

Seabed mineral reserves have been estimated to contain 94,000 tons of cobalt across several different regions - about six times current land-based reserves. If responsible exploitation is possible, these new mineral sources have the potential to dramatically catalyse the low-carbon transition. If exploited irresponsibly, we risk incurring adverse and long-lasting impact on the species, habitats and ecosystems gifted to us by the ocean.

A decision on whether and how to forge ahead is upon us. In order to ensure that we rise to the challenge of that decision, and decide wisely, all stakeholders, including the companies that are set to use this ocean-mined material, must be alert to this emerging debate, and engage with it fully.

Those decisions made today on deep-sea mining are likely to have lasting effects on materials supply chains, the global mineral economy, the economies of some countries, the ocean ecosystem and our ability to tackle climate change as we look to the future.

Written by Winnie Yeh, Lead, Platform Acceleration, World Economic Forum (the views expressed in this article are those of the author alone and not the World Economic Forum).

ØRSTED'S RENEWABLE-ENERGY TRANSFORMATION



‘We want to remain global leader in offshore wind’

Twelve years ago, the Danish energy company Ørsted made most of its money from fossil fuels. Today, it's the world's leading offshore-wind power producer. In an interview with McKinsey, the CEO of Ørsted's offshore-wind business, Martin Neubert, tells the story of the company's transformation: the strategic decision that started it all, the changes it went through, and the outlook for the future.

To stop climate change, companies in every industry must rapidly reduce their carbon emissions. That is no easy task, but a few businesses show it can be done. Ørsted stands out as an example. Twelve years ago, when it was called DONG Energy, the company earned most of its revenues by selling heat and power, 85 percent of which came from coal. Then, in 2009, management announced a major strategic shift: the company would seek to generate 85 percent of heat and power from renewable sources by 2040.

Ørsted invested aggressively in offshore wind and phased out coal. By 2019, it had become the world's largest producer of offshore-wind energy. The company also raised its renewable-generation share to 86 percent - hitting its target 21 years ahead of schedule.

Back in 2008, DONG Energy was a profitable and stable conventional-energy company. How did the idea of pivoting to renewables come up?

“At that time, DONG Energy was largely a domestic Danish energy company. Eighty-five percent of our power and heat production was powered by coal, and 15 percent by renewables. For us, one key factor supporting the decision to rethink our strategy in favor of renewables was the failed attempt to develop a 1,600-megawatt coal-fired power plant project, called Lubmin, in Northeast Germany.”

“We had made substantial investments in this greenfield project during the more than six years we spent trying to develop it. And while the project was supported by the German federal government, we experienced strong local opposition against the idea of building a coal-fired power plant on the Mecklenburg-Vorpommern coastline. This was the first clear sign telling us that the world was beginning to move in a different direction, and we concluded that there was no sustainable way of realizing the project. Also, in 2009, the global renewable-energy agenda was positioned strongly at the United Nations COP15 climate summit in Copenhagen, supported both by the Danish government and by our board of directors.”



‘I don’t think anyone thought we would turn our generation mix upside down within only ten years.’

Martin Neubert, CEO of Ørsted’s offshore-wind business

How did management assess the company’s position and its ability to shift toward renewables?

“In 2008-09, we formulated a new strategy and vision called 85/15, stating that we wanted to change our generation mix from 85 percent conventional, 15 percent renewable to 85 percent renewable, 15 percent conventional. The 85/15 split, which was decided on by executive management, reflected the ambition to conduct a complete turnaround of our generation mix. It also took into account that DONG Energy had spent three decades establishing itself as a company focused on the generation of conventional fuels. So the expectation was that such a turnaround would have to be completed within one generation, or the equivalent of 30 years.”

“At the time, I don’t think anyone thought we would turn our generation mix upside down within only ten years. But that was not the discussion then. Instead, we discussed what our future growth areas should be: areas where we had critical mass, where we had the right competences, and where we could differentiate ourselves. It became clear that one was wind power, which three of the six companies that merged to become DONG Energy in 2006 had already pursued.”

“Onshore wind was well established. We had a sizeable portfolio of projects in Poland and Sweden, and we had been involved in projects

in Spain and Greece. As for offshore wind, we had early-stage operating projects in Denmark and the United Kingdom and large-scale development projects. That gave us critical mass in wind when we formulated our vision.”

“We also had a team of 50 or 60 people working on renewable-energy projects. Some had spent their careers on these technologies, particularly onshore wind. That gave us substantial in-house expertise, backed by a clear understanding of what it would take to develop wind power, technology-wise.”

Back then, the technology landscape for offshore wind looked very different from what it looks like now. How did that factor into your thinking?

“At the time, no offshore-wind projects bigger than 160 megawatts had been built. So we had to ask how we could build large-scale offshore-wind projects in a different way. Could we move from building one highly customized offshore-wind project every two or three years to building one or two more standardized projects every year? What would it take to go from handcrafting to serial production?”

“Answering that question involved a 360-degree review: the supply chain, our competencies, the financing models. We concluded that we

could not do it alone. One challenge was installation. The installation companies in the market were small. We found a considerable risk that they could go bankrupt during a project. That led us to acquire A2SEA as an installation supplier.”

“We would also need strong partnerships with suppliers of turbines, foundations, and cables. Turbines were a particular issue. Since no purpose-built installation vessels existed, we reasoned that we would benefit from working with a manufacturer on the design, layout, and funding of second-generation

installation vessels. Siemens quickly realized that offshore wind could develop into a large industry. We entered a partnership with them, which included the delivery of 500 3.6-megawatt turbines. At the time, it was one of the largest energy agreements Siemens had ever made.”

How did executives and staff react to the decision to take the company in a new direction?

“There was internal pressure to keep DONG Energy the same. It wasn’t unexpected, because we had spent three decades turning the company into a traditional fossil-fuel company. Fossil fuels were our core competence and the focus of our growth strategy. Our employees also perceived that we were the world’s best at running coal-fired power plants, and a benchmark for the industry. The skepticism was broad and profound.”

“Ultimately, though, internal skepticism receded. In 2012, when Henrik Poulsen had just joined as CEO, our portfolio of assets and activities had high exposure to gas and gas-fired power plants. As gas prices dropped in the United States, vast amounts of surplus American coal ended up in Europe, where it replaced gas as the preferred fuel for power generation. That caused us financial difficulties, which made it easier for people to accept the new focus on offshore wind and on the exploration and production of oil and gas, and the moves to divest noncore businesses.”

“We began implementing the new strategy by establishing a wind-power business unit. I think those of us who were asked to join this business unit saw it as the beginning of an interesting journey. A group of strong European utilities was active in UK offshore wind at the time. We all thought that something big was going on and that the UK would be the right place to pursue offshore-wind projects at industrial scale.”

“That proved to be the case when the UK government strengthened its support for offshore wind to help make these projects financially viable. If that hadn’t happened, I’m not sure that we would have progressed as fast as we did.”

Getting into offshore wind required a multiyear effort to sell holdings and build up new assets. How did management secure the necessary capital even as the company was exiting businesses that were reliable sources of cash?

“We had multiple new projects in the UK that needed funding. One model would have involved financing them with external debt and then divesting once the projects were operational. But raising debt for each project would not have worked well with our group-level funding strategy. Another approach, partnering with electric utilities, would have been too complicated, because these companies had their own asset portfolios and strategies.”

“We needed financial partners that could deliver capital and manage their investments while relying upon our experience constructing and operating offshore-wind projects. One structural issue, however, was that we did not want to use project financing, whereas many of our financial investors preferred or were even required to leverage their investment via project financing.”

“This led us to develop the ‘farm down’ model, in which we could fund our half of a project on our balance sheet and partners could use project financing to fund the rest. With farm-downs happening before commissioning, we provided investors with turnkey project offerings, which would protect them from risks we can manage best, including development, construction, and operating risks.”

‘We don’t want to miss out on major developments, such as floating offshore wind.’

Martin Neubert, CEO of Ørsted’s offshore-wind business

That model resonated with the Danish pension funds, and later with Dutch and Canadian pension funds and other investors.”

“Had we not developed the farm-down model, we couldn’t have funded all these projects in Europe. And the structure that we innovated became widely used in the industry.”

What organizational changes took place as Ørsted’s portfolio shifted toward renewables?

“By 2012, our wind-power business unit had grown to hundreds of employees. But it was still working like a start-up. To support new projects, we added whatever resources were needed, which led to inefficiencies. We lacked a proper organizational structure and operating model.”

“Correcting that was one of the key accomplishments of my predecessor, Samuel Leupold. He introduced our first real operating model, establishing global functions, clear project governance, and a product-line organization that systematically reduced the cost of offshore-wind electricity by eliminating ad hoc or project-specific sourcing and procurement.”

“During the past three years, Ørsted has also cultivated a ‘one company’ approach spanning our business units. For example, we have established a management-team forum, consisting of all EVPs and SVPs, who meet four times a year to talk about our strategy and strategic enablers such as talent and digital. That forum facilitates open discussions to break silos, align our approach, and build a strong

network among senior leaders. In addition, we have re-established our leadership-forum meetings for our top 400 leaders.”

Ørsted has made significant moves in recent years. Can you talk about those, and the rationale for them?

“The strategic steps we’ve taken during the past three to five years have focused on turning Ørsted into a global renewable-energy major. The first step was divesting our oil and gas business, which concentrated our business almost entirely on renewables. We also invested in the conversion of our domestic heat and power plants, enabling them to move away from coal toward biomass. As a result, we will exit coal in 2023, and our power generation will be carbon neutral in 2025.”

“In 2016, we completed our IPO, and DONG Energy, which we were still called at the time, became a publicly listed company. The IPO provided us with the flexibility and access to equity that we need to fund growth.

The IPO also gave institutional and retail investors an opportunity to take part in our green transition, while sharpening our profile as a renewable pure-play.”

“Within the past couple of years, we have re-entered the onshore-wind market and moved into solar PV and storage solutions. These moves will help diversify our technology mix so we can better meet the demands of our customers. What’s important to note is that we are moving into these technologies at scale. North America, for example, is a large market for onshore wind and storage solutions, and we are investing there. Everything we do reflects our vision to create a world that runs entirely on green energy. And while offshore wind has the potential to power the world, we’re convinced that a broader technology mix will support the growth of our company even better.”

Ørsted’s transformation into an offshore-wind leader has been complete for some time. What opportunities do you see for growth in that market?

“Our ambition is to remain the global leader in offshore wind. In the past two to three years, offshore wind has expanded from a predominantly European market to a global market. We’ve been a first mover as that shift has occurred. We were the first European developer that went into large-scale offshore wind in the US. We were also the first foreign offshore-wind developer to enter Taiwan. Within a few years, we have developed sizable project portfolios in both markets.”

“To support our growth, we recently reorganized our offshore-wind business and established four new regions. Moving closer to different markets is important for navigating their development. It also helps with commercial matters like owning wind farms. At the same time, we want to keep the scale advantages, leverage, and standards that

our global operations and EPC functions deliver, and so they work closely with our regions.”

New horizons for change in the energy sector are coming into view. How does management keep working hard to ensure that Ørsted remains a leader in offshore wind, while challenging itself to gain a strong position in the energy industry’s next evolutionary phase?

“We ask ourselves that regularly. And I have been asked many times, by investors, by the media, and by people within our organization, if we are at risk, considering that bottom-fixed offshore wind is our bread and butter. We value our global leadership position in offshore wind, and we want to retain that. Obviously, we don’t want to miss out on major developments - for example, in floating offshore wind. But we must respond as the needs of our customers change.”

“The ability to reinvent ourselves has proven to be key. In 2006, DONG Energy consisted of some oil and gas licenses. Then it reinvented itself through the merger of six domestic energy companies. A few years later, the company reinvented itself again by establishing a wind-power business unit that became a global leader within a few years. Scanning new horizons and spotting new business areas are essential to Ørsted’s strategy and our ambition to become a global renewable-energy major.”

Original article: this interview was conducted by Christer Tryggstad, a senior partner in McKinsey’s Oslo office. The article was edited by Josh Rosenfield, an executive editor in the New York office.

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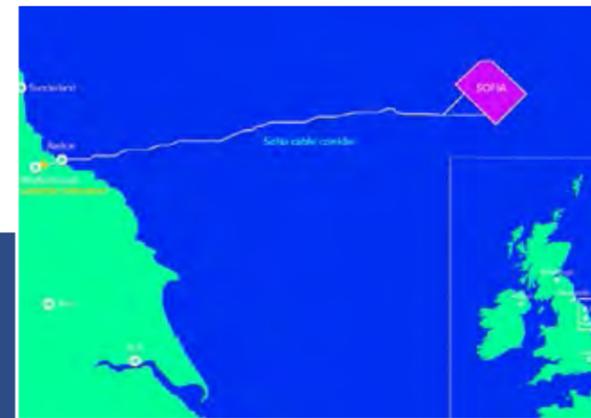
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IV-OFFSHORE & ENERGY SECURES ORDER

Engineering HVDC platform Sofia Wind Farm

Iv-Offshore & Energy announced it has signed the early works contract with Semcorp Marine Offshore Platforms (SMOP) for the engineering of the Sofia high voltage direct current (HVDC) platform (10,000 T).



Sofia Offshore Wind Farm will be one of the largest offshore wind farms in the world and when operational could provide almost 1.2 million UK homes with their annual electricity needs. Iv-Offshore & Energy is SMOP's engineering subcontractor for the balance of plant installation in this endeavour and shall provide detailed design for both the topside and jacket and procurement of topside equipment.

In 2018 UK Grid Solutions Ltd (GE) and Iv-Offshore & Energy (Iv-ONE) completed a FEED study for the proposed Sofia HVDC platform.

For Iv-Offshore & Energy the contract is a great leap forward in the world of the offshore HVDC engineering. We have planted our flag in this sector through our involvement starting with Borwin Alpha (400 MW) followed by Dolwin Alpha (800 MW) and Helwin Béta (690 MW) platforms and various engineering and design studies such as the 2 GW offshore grid connection FEED for TenneT.

Project details

Sofia is the largest project in RWE Renewable's current development portfolio with a generating capacity of up to 1.4 gigawatts (GW). The wind farm site is located 195 km off the coast of the North East of England and on the shallow central area of the North Sea known as Dogger Bank.

During the last ice age the bank was part of a large landmass connecting Europe and the British Isles. In 2015 the UK Secretary of State awarded development consent orders to four offshore wind projects to be sited on Dogger Bank, including Dogger Bank Teesside B, now called Sofia.

Construction of the wind farm is due to begin onshore at its Teesside converter station site early next year, with offshore construction expected to get underway in 2023.





Pushing offshore wind to a new dimension

BUSINESS CASE REMAINS POSITIVE FOR SIEMENS GAMESA – EVEN IN COST-FOCUSED ENVIRONMENT.

Offshore plays a key role in the present and the future of the energy transition.

Titan, giant, colossus, gargantuan scale, monumental dimensions. Describing Siemens Gamesa’s new offshore wind turbine is no easy job. With an unprecedented energy capacity of 14 MW and rotor of 222 meters, the launch of the turbine amazed the market. In just over a month, it accumulated 4.3 GW of conditional orders with different customers in markets as diverse as Taiwan, the United States, and the United Kingdom.

‘The size of the turbine is revolutionary, yes, but the technology based on a solid foundation of five previous generations of Direct Drive machines.’

Peter Esmann, Senior Product Manager

To explain some of the key insights of the SG 14-222 DD launch, we invited Peter Esmann, Senior Product Manager, and Sidse Legaard Jensen, Commercial Product Manager for a brief chat. Both have been directly involved in the launch towards customers and ensuring that the business case remains positive for Siemens Gamesa – even in a challenging, cost-focused environment. We’ve asked them to analyze the keys to the product’s development, in which over 190 employees from the company have participated.

What does this launch mean for Siemens Gamesa?

Side: “This launch strengthens Siemens Gamesa’s position at the forefront of the offshore wind industry. Of that there is no question. We pioneered the offshore wind market with the first project back in 1991, we developed it, and have pushed the entire industry forward to a new dimension. Offshore plays a key role in the present and the future of the energy transition: with this 14 MW turbine, we have the most competitive product ready in time for the huge projects that are being tendered and auctioned now, with installation set for the mid-2020s across the world.”

What does this launch mean for our customers?

Side: “The launch of the SG 14-222 DD provides our customers with an increase of more than 25% Annual Energy Production (AEP) compared to the predecessor, improving the business case of our customers significantly. Of course, bigger is not automatically better, so we have had great focus on keeping weight and loads down to the benefit of our customers’ balance-of-plant costs. In order to provide the best possible business case for our customers, we consider everything from the first wind gust touching the blade and until the power is ready in the onshore cables.”

You mentioned large customer projects, where will those projects be installed?

Side: “The big traditional European markets lead the offshore market, especially UK, Germany, and The Netherlands. We expect strong growth in Asia-Pacific (APAC), starting with Taiwan, followed by Japan and Korea, and then there’s the US. These markets will take off in the mid-20s.”

Let’s talk about dates. After the launch in May 2020, what are the next key dates for this product?

Side: “The installation of the prototype will start by the end of 2021 in Østerild, Denmark. The blades for the prototype will come from our factory in Aalborg, Denmark, and the nacelle will be produced in Brande, Denmark. This is the same as its predecessor, which was successfully installed and commissioned early this year. We are looking forward to utilizing our new blade test stand in Aalborg to test these huge blades. We plan to start serial production by the end of 2023 so that we can install the first commercial project by Spring 2024.”

The Wake Adapt feature can increase AEP by up to 1% for wind power plants. Will you implement this feature in the new turbine?

Side: “Of course. This control feature can be applied to any existing offshore wind power plant. But it’s especially interesting for wind power plants equipped with the new SG 14-222 DD turbines. The larger the rotor is, the more Wake Adapt has the opportunity to create even more value. Basically, the larger the wake effects are in the wind power plant, the more benefit our customers will gain from applying the Wake Adapt feature.”

You launched your star offshore product during the COVID-19 pandemic. How has this impacted in your plans?

Esmann: “We had to rethink the product launch strategy, and eliminate



Is there a solid business case behind the design of a massive wind turbine?

an in-person launch. Despite the COVID-19 outbreak, we successfully managed the launch in the best possible way, and maximized the use of digital platforms to reach all of our stakeholders: customers, journalists, employees, and more.”

Within just over one month of the launch, the company has signed conditional orders for over 4.3 GW of capacity. That is impressive! How do you sell a product which is like a ‘green banana’ – one that will first be ready in the future?

Esmann: “Selling a turbine even before the prototype is up requires a lot of trust from our customers but that trust is helped by the fact that we have already installed 1,000 offshore Direct Drive turbines and sold an additional 1,000 turbines. This means a lot. By the time we install our first project, there will be more than 2,000 Siemens Gamesa offshore Direct Drive turbines spinning out at sea.”

This is the newest generation of Siemens Gamesa offshore Direct Drive turbines. What innovations can we find in the SG 14-222 DD,

the largest ever offered by the company?

Esmann: “The size of the turbine is revolutionary, yes, but the technology is based on a solid foundation of five previous generations of Direct Drive machines. The real challenge is that we have managed to scale it up to almost 15 MW and keep the weight of all the components low, from blade to the tower and foundation. As you know, Siemens Gamesa IntegralBlades have a mass advantage – for the big blades, we estimate a 3-4% lower weight compared to those of other manufacturers, which are glued together from two pieces.”

The turbine can be adjusted to produce 15 MW with Power Boost. Can you explain how?

Esmann: “The Power Boost function is a wind turbine control feature that increases (boosts) power based on real-time monitoring of the site-specific conditions. For turbines equipped with Power Boost, this functionality is always active. However, if for example the wind speed reaches storm levels, or the turbulence level exceeds a certain limit,

Power Boost is deactivated, and the turbine returns to normal power. What we have seen in our fleet analysis is that the Power Boost feature is active more than 98% of the available time, and thus ready to produce up to 15 MW power for this turbine.”

As you know, the huge scale of the offshore turbines always takes the headlines. Blades larger than the Statue of Liberty, turbines taller than the pyramids of Egypt. How tall is this turbine?

Sidse: “This will always depend on the site requirements. With a 25-meter clearance between the tip of the blade and the water line, the tip height reaches 247 meters. But if a specific project needs a higher clearance, let’s say 50 meters for example, then the tower would have to be longer and the tip height would reach 272 meters.”

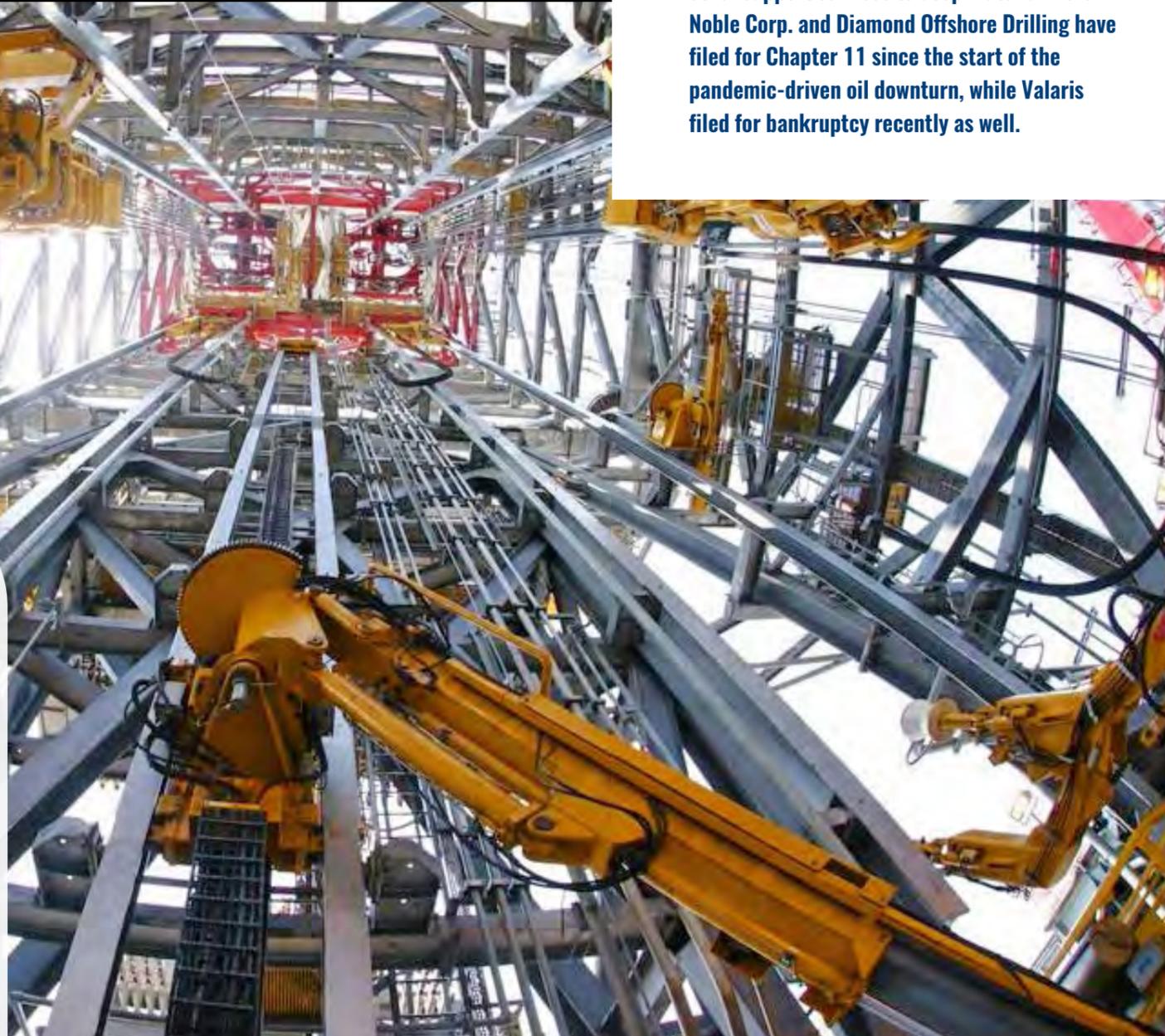
A significant trend for offshore is that turbines are becoming larger and larger. The never-ending question is, where is the limit? How far can you go?

Esmann: “From a pure technical perspective, the issue is not to make the turbines larger. We can foresee even larger megawatt turbines becoming commercially relevant as we approach the end of the decade. Since factories and the suppliers have come closer to ports, land transport is also no longer a key supply chain challenge. The largest technical challenge as we see it now lies with installation vessels, as they must lift consistently longer and heavier towers in one go. There are only a handful of installation vessels in the world that can do that for the turbines in this class. The solution in the future might come for example, by lifting the towers in two go’s or investing in larger vessels. We’ll see; in the end it depends on the business case.”

Sidse: “The big question that any manufacturer should pose is not technical but commercial: is there a solid business case behind the design of a massive wind turbine? You need to carefully weigh up all the risks. Like with ships or aircraft, there comes a point where increasing size is not economically viable anymore. This however does not mean that turbine developments will then stop, but instead that the advances will likely focus even more on efficiency. We will as an industry always continue to strive for excellence.”

**COVID-19 AND WEAK OIL PRICES PUSH
OFFSHORE SERVICE FIRMS IN BANKRUPTCY**

**Offshore drilling
structurally
damaged:
recovery not
imminent**



Offshore oil servicers are going bust at the fastest pace in three years as explorers spurn high-cost drilling to deal with a worldwide slump in commodity prices.

The debacle, triggered by the pandemic-driven drop in oil prices, has already claimed some of the biggest companies that supply rigs, transportation and other support services to deep-water drillers. Noble Corp. and Diamond Offshore Drilling have filed for Chapter 11 since the start of the pandemic-driven oil downturn, while Valaris filed for bankruptcy recently as well.

Firms including Transocean, the world's the world's biggest owner of deep-water oil rigs, along with Seadrill and Pacific Drilling are exploring strategic options as they seek to stave off default, leaving more than \$30 billion of debt at risk. The industry's turmoil has sparked the biggest wave of restructurings since 2017, when the effects of the last oil price downturn reverberated through the industry.

"Offshore drilling is structurally damaged, and recovery is not imminent," Bernstein analyst Nicholas Green wrote mid-August in a note to investors. "The March oil price crash may, ironically, help to drive an eventual turnaround, if it forces sector restructuring and clear out of the weakest names."

Sinking ships

The increase in bankruptcies exposes a simple supply and demand problem for an industry that leans on ships and helicopters to ferry equipment and crews to rigs in the middle of the ocean. Higher-cost offshore projects aren't profitable with oil around \$40 a barrel, leaving too many vessels chasing a dwindling pool of business. Unless the broader economic picture improves, more filings are likely to follow as producers sideline big offshore projects.

Offshore wells can have advantages: they produce relatively stable and predictable amounts of oil for years longer than onshore projects. But they require massive upfront costs that producers aren't willing to take on in the midst of a bruising recession, according to S&P Global Ratings analyst Christine Besset, who grades the service companies.

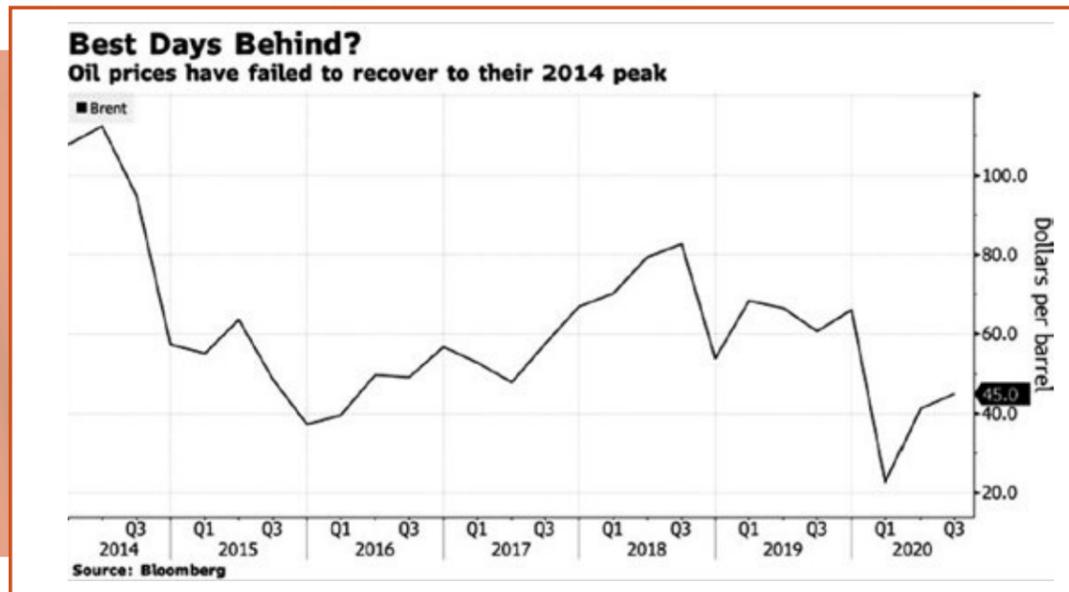
"There is just too much capacity in the market versus the demand and the project pipeline," Besset said. "It's very likely that there will be more debt restructurings for those offshore drillers."

Ship Prices Slip

A representative for Transocean declined to comment. Representatives for Noble, Diamond Offshore, Valaris, Seadrill and Pacific Drilling didn't immediately respond to requests for comment.

Offshore companies are filing for Chapter 11 at higher rate this year in part because some of them escaped the last downturn that drew onshore peers into bankruptcy. At the time, many offshore service firms had long-term contracts for large projects that gave them a lifeline even as oil prices collapsed.

During the heady days of \$100 oil, service companies could lease out a technologically advanced ship for \$600,000 a day. The average day rate is now about \$300,000, according to Evercore ISI.



In some cases, explorers such as Exxon Mobil Corp. and Murphy Oil Corp. are renting drillships for less than \$200,000 a day.

Producers have shifted to lower-cost shale production in recent years because of its faster timeline from drilling to steady oil production. That business can also more easily satisfy investors' interest in companies that generate positive cash flow and have manageable debt loads, though oil prices have fallen so far this year that even some shale drillers like Chesapeake Energy Corp. and Whiting Petroleum Corp. have been forced to file for bankruptcy.

Transocean, the world's biggest deepwater rig owner, has led the offshore industry in slimming down by scrapping more than 50 of its own rigs. But shrinking businesses still haven't been enough to wipe out a massive glut of gear. After the industry hit its peak of 322 rigs drilling for oil in more than 400 feet of water in 2014, the number of vessels is down by about one-third this year to 221, according to Evercore ISI.

'They were already in bad shape and had too much debt for their cash generation ability, coronavirus just precipitated the inevitable issues.'

Christine Besset, S&P Global Ratings analyst

Paradoxically, more bankruptcies may be a positive for the industry overall, said Fredrik Stene, an analyst at Clarkson Platou Securities AS who follows offshore service companies.

Filings allow companies to cut debt when they otherwise wouldn't be able to. Many firms pledge assets to get access to credit, meaning that they can't easily sell supplies to reduce their obligations outside of Chapter 11, he said.

"This is what the industry needs," Stene said. "The state we're in right now is not a state where the capital structure of many oil services companies will be sustainable."

Left behind

Hot credit markets have let firms in troubled industries like cruising and air travel borrow billions, but most offshore service companies won't be able to refinance their debt without a trip to bankruptcy court because they can't dangle the high interest rates and hefty collateral packages investors now demand to lend to risky companies, Stene said.

He expects that Chapter 11 filings will result in debt being converted to equity, with existing shareholders getting nothing. Cleaning up balance sheets will also set the offshore services industry up for much-needed consolidation, Stene said.

To be sure, Transocean is one company that may be able to avoid bankruptcy due to its backlog of planned projects, he said. In the meantime, the company is considering options to deal with its \$9 billion debt load and is looking to exchange as much as \$750 million of notes for longer-dated maturities.

But as long as oil stays around \$40, the picture is unlikely to improve for most offshore service firms because companies that hire them aren't going to be racing back into offshore, S&P's Besset said. "From the producer's perspective, you really need some support in oil prices, or confidence that prices will not collapse when you're looking at big projects," she said. "Clearly we're not there."

Wind sector Southeast Asia needs \$14 Bn

According to a new analysis, the wind power sector in Southeast Asia requires at least USD 14 billion of investments by 2030. This is to support the 8.9 gigawatts (GW) of new wind power capacity that is expected to be added between 2020 and 2029, according to Wood Mackenzie.

With a population exceeding 650 million and average annual power demand growing at 8 percent until 2030, Southeast Asia is one of the world's fastest growing power markets. To support this growth, the region's governments are setting renewable energy targets to diversify their energy mix to be more energy self-sufficient.

Analyst Robert Liew said: "Currently there are about 20.7 GW of planned wind power capacity in the pipeline, but we think less than

half or 8.9 GW will be realised by 2030. The coronavirus pandemic has slowed development in 2020, as border closures delay equipment transportation and prevented foreign technical staff support in these nascent Southeast Asian markets. Vietnam has risen to become the shining star in the region's race to add wind power capacity. It alone accounts for 66 percent of new capacity expected to be added by the end of the decade."

The surge in projects in Vietnam is driven by the government's decision to upgrade the wind feed-in-tariff (FIT) in 2018 to 85 USD per megawatt hour (MWh) for onshore wind and 98 USD/MWh for intertidal offshore wind with a 2021 deadline for both FITs, though a potential extension to 2023 is still to be decided.

Liew added: "There is potential for more upside if Malaysia and Myanmar start utility-scale wind development and offshore wind development occurs in markets outside Vietnam."

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**UNLOCKING THE POTENTIAL OF THE
UK'S OFFSHORE WIND INDUSTRY**



Rob Lilly, Procurement and Supply Chain Manager at Vattenfall.

UK must collaboratively take decisive action

More British businesses can supply offshore wind projects but developers need to engage better with a more joined-up supply chain, writes Rob Lilly, Procurement and Supply Chain Manager at Vattenfall.

'The aim is to deploy at least 30GW of offshore wind generation capacity by 2030.'

Rob Lilly, Procurement and Supply Chain Manager at Vattenfall



The UK's offshore wind industry could sit front and centre in the UK's post COVID-19 economic rescue plan, and in the longer term be a guiding light in the transition to net zero. If we are to power the UK's green recovery, key stakeholders - including government, developers, operators and the supply chain - must collaboratively take decisive action.

Building on firm foundations

The UK offshore wind industry has 9.8GW of installed offshore wind capacity - more than anywhere else in the world. This is due in part to encouragement from successive governments. Capacity is expected to rise to 19.5GW by the mid-2020s.

In March 2019, the UK government and the offshore wind industry published the Offshore Wind Sector Deal to accelerate this growth. The aim is to deploy at least 30GW of offshore wind generation capacity by 2030.

A key objective is to achieve 60% UK content during the life of the projects, supported by a £250m industry fund to increase productivity and innovation. RenewableUK says the UK's offshore wind sector could power a £17.5bn investment in the UK economy by 2021 and 27,000 direct UK jobs by 2030.

Spurred by the UK's advantages - strong wind resources, favourable seabed conditions, offshore energy experience and intellectual property - the UK government has now raised the target to 40GW. This means increasing the pace of commissioning through the 2020s, and more activity - particularly high-tech and innovative products and operations - should become UK based. The plan can add value to the UK knowledge economy, including exports, as well as helping secure our pipeline in a competitive global market, and ensuring that decarbonisation continues.

Top-down, bottom-up action

Developers increasingly rely on economies of scale, efficiency and project longevity, alongside the Contracts for Difference (CfD) regime, to enable innovation and recoup returns on huge infrastructure investments in the UK. The scale of projects and access to global markets also favour international Tier One (T1) companies.

Smaller supply chain companies currently fare less favourably - hence the Offshore Wind Sector Deal 60% UK content target. Vattenfall's Norfolk Vanguard and Norfolk Boreas offshore wind farm projects, if consented and built, will contribute 3.6GW of power to the grid from the mid-2020s. Vattenfall has experience in aligning with sustainable procurement policies and working with the UK supply chain. The key is early engagement.

Since 2018, Vattenfall has conducted more than 60 supply chain meetings, reaching over 600 local and UK companies and stakeholders interested in the Norfolk projects and the wider UK pipeline.

Vattenfall offers small-medium enterprises support and additional time to qualify and enter the sector, and introduces them to potential partners, including T1 companies. A recent meeting resulted in the publication of the Offshore Wind Supply Chain: Opportunities and Expectations Workshop Report. It identifies key actions from the sector as a whole for government, developers and the supply chain. Vattenfall is carrying out things that have been asked of it - though without consent yet for the Norfolk projects, this means accepting some risk to maintain the partnership approach.

Driving the green economy

The next generation of offshore wind projects will count on larger rotors, smarter operations, coupled systems generating green hydrogen, interconnectors, intelligent networks, and storage solutions. Developers need multi-disciplinary teams across engineering, design, informatics, manufacturing, grid, finance, consenting and regulation to enable and encourage appropriate progress. With major projects awaiting consent decisions, upcoming project leasing rounds in 2020 and the fourth round of the CfD scheme due in 2021, government decisions made during the next few months will indicate whether renewables will drive the UK's green recovery.

REPORT: GREEN ELECTRICAL VALUE CHAINS



Halvor Hoen Hersleth.

Energy transition opportunities in Norway

Mid-August a comprehensive and extremely useful cross industry report was launched on how Norway can drive new business opportunities based on its renewable energy position. The report 'Grønne elektriske verdikjeder' (green electrical value chains) is only in Norwegian, so Stephen Bull, SVP North Sea Region, New Energy Solutions at Equinor and Chair of RenewableUK, translated some highlights.

Full disclosure, Equinor has been deeply involved in the work, Bull's colleague and member of the North Sea team, Halvor Hoen Hersleth (see photo), has been instrumental as one of the authors of the report. Despite Norway enjoying all the benefits of an almost 100% renewables power system (mostly from hydroelectricity), the value creation and export opportunities, beyond just electrons, has been mostly centred around aluminium and metal production.

In this sense, the companies involved in the work (including 16 major industrial players like Hydro, Statkraft, Elkem, Kongsberg and Statnett) have cast an eye to Norway's comprehensive oil and gas ecosystem as too Denmark's significant wind cluster, particularly its presence in export markets. The main focus areas include: Building home-grown global renewable majors (like Equinor and Statkraft); a major offshore wind supply chain - for fixed bottom and floating; value chains for battery and energy storage; hydrogen from electrolysis production at scale; zero carbon solutions for the maritime industry; and, optimising power systems and smart grids as an export industry.

To facilitate these specific areas requires public-private support, including ambitious and clear targets and policy mechanisms. In this context, the UK's Offshore Wind Sector Deal was mentioned as an example of clear political guiding. Yet, the recommendations are not about protecting Norwegian industry or establishing barriers to entry. The research work completed found that by having world class technology or some definitive element of competitive advantage is an absolute necessity to build a sustainable business that can win export markets. Competition and open markets are essential.

How to scale is also a key element from the report. The speed of when and how to drive volume is particularly poignant to the battery market. Elkem's announcement in a new battery graphite factory in Norway is designed to scale as a modular concept. Given the volume competition from Asian manufacturers, matching demand is essential, but as important is the total climate footprint in the production cycle. Elkem's use of renewable power and its lower carbon strategy is seen as an important differentiator for its customers in the automotive sector.

In terms of energy transition possibilities and re-skilling, a good example is Aibel, which is fast becoming a leader in offshore wind converter platforms. Aibel will provide these for Equinor & SSE's Dogger Bank project, the world's largest wind farm, although their focus has been around oil and gas. With ambitious decarbonisation targets set for Norway's offshore oil and gas sector, Aibel has developed a growing business in offshore modifications work, as more oil and gas platforms are electrified from shore, or from offshore wind. Norway is known for being a high cost, but high skill economy. In this context, how major engineering and manufacturing kit can be split between lower cost economies and Norway is an area the oil and gas industry has developed over decades. Not everything can be 'made in Norway' but understanding the national value creation opportunities is essential.

Finally, one of the big learning experiences from the 16 different companies involved was to really appreciate the breadth and detail of the value chain and understanding each other's drivers and business models. Energy is at the heart of everything we do, so cooperation across very different industries is essential to find zero carbon solutions and opportunities. The report is also an inspiration for developing new energy transition opportunities for Equinor.

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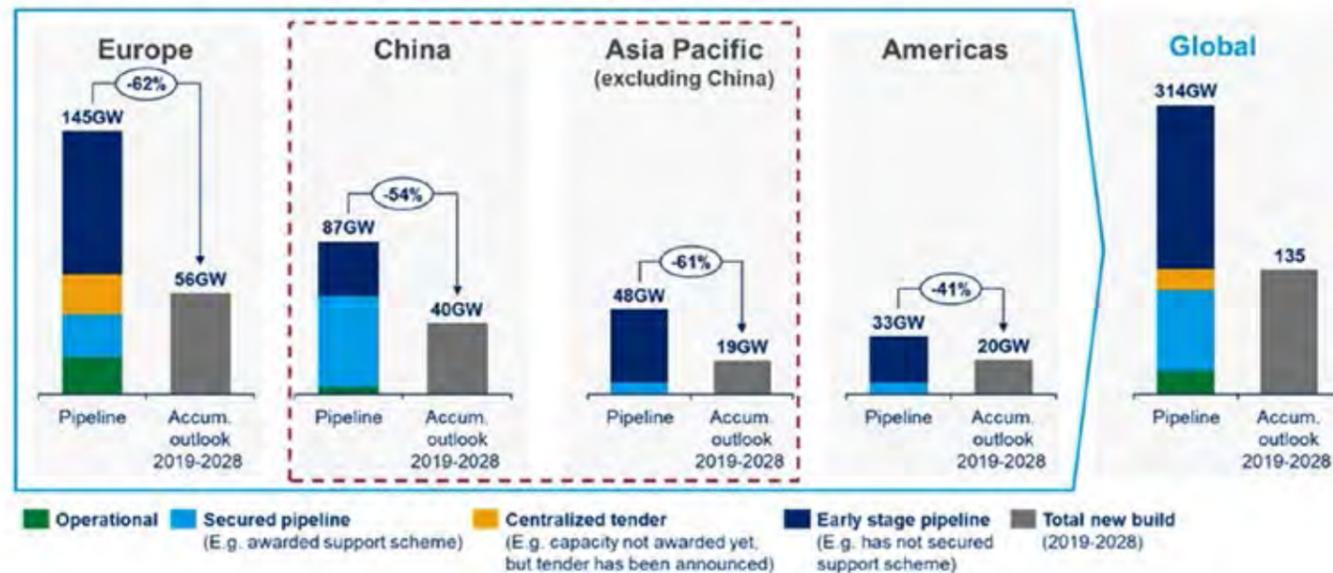
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SECTOR CAN HELP DECARBONISING THE REGION

Europe is leading the global push towards more offshore wind



Source: Wood Mackenzie

Asia's pathway to a low carbon future is challenging. Coal dominates in the key markets of China and India, gas is central to the power sectors of Japan and South Korea. Meanwhile, much of the technology needed to really push the region's energy transition out of the starting blocks is nascent and expensive. Deep decarbonisation feels a distant aspiration.

But despite the obstacles, there is hope. Offshore wind offers enormous potential for Asia and investment is underway. The APAC Power and Renewables team of Wood Mackenzie have identified almost 1,500 GW of technical offshore wind potential in Asia, much of it in China, Japan, Taiwan, South Korea, and Vietnam. As power markets are slowly liberalized across Northeast Asia, there is growing commercial demand for renewables as costs continue to decline and governments seek to attract investment.

Yet today in these markets only 0.4% of the total offshore wind potential is operational. This percentage will rise, but only slowly. By 2030, Wood Mackenzie expects around 5% of potential capacity will be in place, with new annual offshore growth in Asia doubling from 4 GW a year to over 9 GW a year. Europe's offshore wind capacity will grow faster, despite its total generation capacity being only a third of Asia's by 2030.

Much still needs to be done. Costs still need to come down by half if offshore wind is to be competitive with fossil fuels and increasing competition from other renewables such as onshore wind and solar PV. In addition, ambitious offshore wind targets will be tough to meet without

Offshore wind offers enormous potential for Asia

Turbines are getting bigger and more efficient, driving output increases at lower unit costs.

sustained government support. Costs will continue to fall with technology and scaling - average global offshore wind generation cost will be halved by 2028 - but without a clear route-to-market that requires policy and financial support from governments, developers will be hesitant to invest in offshore wind.

China leads the way

Unsurprisingly, China is Asia's largest offshore wind market today, with the strongest pipeline of future projects. We now expect 38 GW of new added offshore wind capacity to come online in China by 2029. And while China has no official target beyond 2020, its project pipeline will support offshore wind growth in the long-term. I'm keen to see how the upcoming 14th five-year plan will tackle offshore wind.

Challenges still need to be overcome. The government plans to remove current subsidies by the end of 2021, slowing the rate of growth over the next five years while costs remain relatively high. Through the short term we will see record new offshore installations (up to 5 GW) as developers race to complete projects before feed-in tariffs expire next year. Thereafter the pace of growth is likely to slow as China offshore wind needs up to US\$32/MWh of subsidy to support new capacity additions from 2022 to 2025. Falling costs should see wind competing without subsidy by 2028.

More government support

Looking across the rest of Asia, future growth targets are ambitious: excluding China, the region aims to add a further 54 GW of wind by 2030. But is enough government support in place to achieve this? Supportive policy has been critical to Europe's burgeoning offshore wind sector as governments incentivised offshore investment beginning more than a decade ago. Some markets are taking the lead. Taiwan is leading the pack, having approved 5.7GW of projects by 2025. India has ambitious plans, but how much will get built? Japan and Australia don't even have national offshore wind targets, though the industry is lobbying for growth.

Opportunities

The opportunities for business to prosper through the growth of the offshore wind sector is not limited to capacity investments. Supply chains are a critical part of the sector and are experiencing huge growth. Original equipment manufacturers (OEMs) are pushing the boundaries of what offshore wind can deliver. Turbines are getting bigger and more efficient, driving output increases at lower unit costs. Mainstream offshore turbines that were 6-8MW a few years ago are now being replaced by next generation 10-12MW rated machines.

Wood Mackenzie estimates the offshore turbine supply chain, for example, presents over US\$200 billion of opportunity in the next decade globally. Offshore growth in Asia offers scope for turbine supply chain localisation in those markets. The supply of key components has seen a consistent shift towards Asian markets over the past decade. Chinese OEMs dominate the domestic markets, although western OEMs have achieved success in other countries in Asia.

The ambitious targets for offshore wind in many Asian markets provide a glimpse at how the region will move towards a lower carbon future. The sector will also create new opportunities for energy companies, supply chain manufacturers and investors. But this will need support. As with all aspects of the energy transition, government intervention and policy are critical to long-term success.

Thanks to Gavin Thompson, Wood Mackenzie, Vice Chairman, Energy - Asia Pacific, Wood Mackenzie.

KEY MILESTONE IN PROJECT CONSTRUCTION

Blauwwind achieves First Power



Aeolus at work (photo: Flying Focus).

On 7th of August early in the morning, Blauwwind achieved First Power on the Borssele III/IV windfarm in the Dutch North Sea. This marks a key milestone in the construction of the project as the first turbine is now generating power and delivering renewable electricity into the Dutch grid. 36 of the 77 turbines are now installed and after undergoing further initial tests in the coming weeks, it is expected that one additional turbine will become operational per day.



Roeland Borsboom.

Completion of the offshore windfarm is currently expected in October 2020. Total expected power generation is 3,000 gigawatt hours (GWh) per year, enough to power more than 825,000 Dutch households.

"I am proud of the team that has managed the safe execution and the commissioning phase, achieving first power on time," says Roeland Borsboom, Project Director and CEO for Blauwwind. "Keeping a project of this scale and complexity on track in these challenging times can only be managed through good collaboration and flexibility. The delivery of First Power has been achieved in close cooperation with partners Van Oord, MHI Vestas and TenneT, who has provided grid readiness one month ahead of time."

The windfarm consists of 77 V164-9.5 megawatt (MW) turbines produced by MHI Vestas, with a total installed capacity of 731.5 MW. The Blauwwind consortium partners are Partners Group, Shell, DGE, Eneco Group and Van Oord. Shell and Eneco Group have also secured 15-year Power Purchase Agreements (PPAs) from the Consortium, under which each will buy 50% of the power generated by the windfarm. Van Oord has executed the engineering, procurement and construction of the foundations and inter array cables. The offshore substation Borssele Beta has been designed and constructed by TenneT.

FOUNDATIONS AND EXPORT
CABLES INSTALLED

Triton Knoll drives towards first power in 2021

At the end of August Triton Knoll took another huge step towards first power generation in early 2021, completing the installation of all 90 turbine foundations and two 50 kilometre long export cables, this week. The successful delivery was achieved during one of the project's most challenging times due to the impact of Covid19, and has been completed within the planned summer delivery window.



Throughout construction, the safety and welfare of everyone working on the project has been and remains a top priority for Triton Knoll and its contractors. Covid19 forced the implementation of significant changes in working practices, requiring regular screening and testing of personnel, long periods of isolation for many of those working on the project, and site and vessel lockdowns to ensure the safe and timely delivery of the critical energy infrastructure project could continue.

Project Director for Triton Knoll and RWE Renewables, Julian Garnsey, said to OER: "We are delighted to have completed this phase of construction within the summer delivery window despite the impacts of Covid19. This is a great credit to all of our supply chain partners and everyone working in the Triton Knoll team. We have made excellent progress on the project to date, and look forward to installation of the first offshore turbines in early 2021."

Each foundation consists of a 600 tonne steel monopile and 160 tonne bright yellow transition piece, manufactured using state of the art methods to be significantly lighter than previous technologies. The installation contract was awarded to, and managed by Seaway 7, and the foundations were installed by Heavy Lift Vessels Seaway Strashnov and DEME Offshore's Innovation.

Both 50km export cables were also completed this week with the jointing of the final length of NKT-manufactured subsea offshore export cable, undertaken by NKT from the vessel Olympic Zeus.

Boskalis laid and plough buried both lengths of 220kV subsea cables, which link the two offshore substation platforms to the onshore electrical network, using the vessel Ndurance. Each circuit, once energised, will transmit the high voltage electricity generated by the wind farm back to the shore, and ultimately into UK homes and businesses.

With continuing concern over the pace and impact of climate change, the need for nationally significant offshore wind projects like Triton Knoll to help decarbonise the UK's energy infrastructure is greater than ever. The state-of-the-art offshore wind farm will have a maximum installed capacity of 857 megawatts and, once fully operational, will be the most powerful in the RWE fleet and capable of powering the equivalent of over 800,000 UK homes.

The project is located over 32 kilometres off the Lincolnshire coast, with a turbine array that covers an area of 145 square kilometres, bigger than the City of Manchester. It is jointly owned by RWE, J-Power and Kansai Electric Power, with RWE managing the wind farm's construction and long-term operation and maintenance works, on behalf of its project partners.

Pictures: Triton Knoll, DEME Offshore.

TO VERIFY IN-HOUSE PITCH BEARINGS AND PITCH SYSTEM



3D illustration test facility STRETCH project © IDOM

A consortium of GE Renewable Energy, LM Wind Power and TNO will construct the largest wind turbine rotor test rig of its kind. In this test rig, the giant rotor blades can be tested under different conditions. The facility is being built under the three-year STRETCH project, with partial funding from the Dutch Ministry of Economic Affairs. Construction of the test facility at LM Wind Power's WMC Technology Center in Wieringerwerf, the Netherlands, is expected to be completed in November 2020.

Wind turbines continue to grow in size to reduce the cost of wind energy per kWh. This requires great efforts in innovation and technological development. The rotor test rig will allow for verification of the strength and the dynamic behaviour of wind turbine rotors under the enormous mechanical loads caused by large blades. Knowledge gained in the project will be used to improve existing design tools.

Peter Eecen, R&D manager TNO Wind Energy: "Larger turbines are essential to shape the much required energy transition. Without innovations, larger turbines would become too heavy and too expensive to be commercially viable. Fast-paced innovation in wind turbine blade and rotor design, materials, construction and manufacturing have made the up-scaling of offshore wind turbines feasible and attractive around the world."

"We are thrilled by this chance to partner with the Dutch government, GE Renewable Energy and LM Wind Power to advance the understanding of rotor technology, which will ultimately contribute to better designs that help make renewable wind energy even more reliable and affordable."

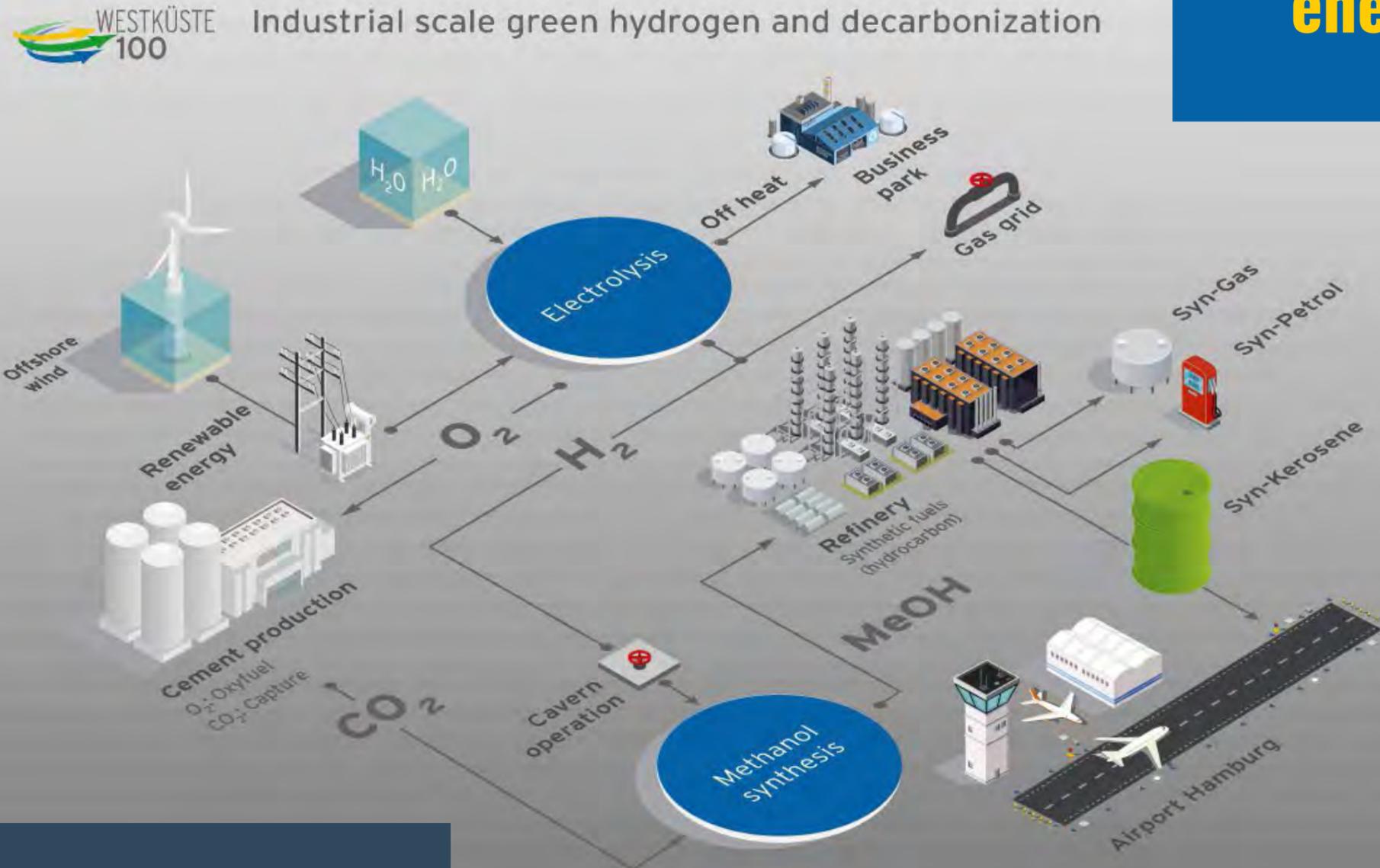
Hanif Mashal, LM Wind Power Vice President of Engineering, stated: "Establishing the most advanced and largest rotor test rig of its kind shows our commitment to develop insights into rotor technology that go beyond blade production alone."

"With this innovative rotor rig, we will be able to verify in-house the pitch bearings and pitch system that fix the wind turbine blades to the hub and allows pitching blade maximizing captured energy while reducing loads on wind turbine. This capability will provide our customers with a better understanding of the dynamic behaviour of large onshore and offshore rotors and will help LM Wind Power design

TNO supports construction largest wind turbine rotor test rig

WESTKÜSTE100 RECEIVES FUNDING APPROVAL

First real-world laboratory of energy transition



Early August the consortium behind the WESTKÜSTE100 project received the go-ahead and funding approval from the Federal Ministry of Economic Affairs and Energy that will make it Germany's first hydrogen project included in the "real-world laboratories fostering the energy transition" programme. The project is backed by an investment volume totalling 89 million euros.

The funding volume approved for the project's launch on 1 August 2020 amounts to 30 million euros. As a result, the real-world laboratory project has taken a significant step forward towards its goal of progressively establishing a regional hydrogen economy on an industrial scale. The consortium brings together a total of ten partners: EDF Deutschland, Holcim Deutschland, OGE, Ørsted Deutschland, Raffinerie Heide, Heide's municipal utility, Thüga, and thyssenkrupp Industrial Solutions, along with the Region Heide development agency and the Westküste University of Applied Sciences. They plan to produce green hydrogen, transport it in the gas network, use it in industrial processes and to interlink different material cycles within the existing infrastructure. This will allow the decarbonisation of industry, mobility and the heating market to be tested under real conditions - with the overriding objective of climate protection.

Green future

"An electrolysis plant with a capacity of 700 MW – this is our vision and the next milestone in implementing the development targets laid down in the national hydrogen strategy by 2030," says Jürgen Wollschläger, managing director of Raffinerie Heide and coordinator of the WESTKÜSTE100 project. "Starting from today, the WESTKÜSTE100 partners will be working together to create this green future and build an ecologically and economically sustainable business model. We see the energy transition as a cross-sectoral endeavour. With industry, science and politicians all pulling together, our 700 MW vision will become reality."

Leading federal state

Schleswig-Holstein's state president Daniel Günther also welcomed the decision: "I am delighted that the WESTKÜSTE100 real-world laboratory is the first hydrogen project among the winners selected in last year's national ideas competition to receive funding approval." He said the project showed how innovative Schleswig-Holstein's efforts were to drive forward the energy transition and how economy and ecology could be combined to optimum effect. "We are one of Germany's leading federal state when it comes to generating electricity from renewables. But we also want to make more use of the renewable electricity and thereby help generate added value in our own region. This will allow the energy transition to be accomplished in other areas, such as heating, mobility and industry," Günther added. The WESTKÜSTE100 real-world laboratory was a model example that could stimulate further innovations around hydrogen as a future technology.



'The early strategic orientation of an entire region is now paying off.'

*Dirk Burmeister, chief executive
Region Heide development agency*

Launch

The funding approval enables work to begin on the first phase of the project, which is set to run for five years. A newly formed joint venture, H2 Westküste GmbH, comprising EDF Deutschland, Ørsted and Raffinerie Heide, is to build a 30 megawatt electrolyser which will produce green hydrogen from offshore wind energy and provide information on the operation, maintenance, control and grid compatibility of the equipment.

According to refinery managing director Jürgen Wollschläger: "With the adoption of the national hydrogen strategy at the beginning of June 2020, green hydrogen has become the key element in Germany's energy transition. For us at Raffinerie Heide, the funding approval received today fires the gun to go all out in creating a new, green business model around the manufacture and exploitation of green hydrogen for the future. In building and commissioning an industrial-scale electrolysis plant on our site we will become an active part of the industry of tomorrow."

Jean-Marc Bazenet, managing director of EDF Deutschland, and Christelle Rouillé, CEO of Hynamics stated: "The EDF Group welcomes the decision to grant Federal Ministry of Economic Affairs funding, which will facilitate and accelerate the construction of further large electrolysis plants. This marks an initial, decisive step in Germany taken by the EDF Group and its subsidiary Hynamics, which specialises in decarbonised hydrogen production. This project forms part of the hydrogen strategy of the EDF Group overseen by Hynamics which is targeted at decarbonising the mobility and industrial sectors. We are very proud to be actively involved in implementing the federal government's hydrogen strategy and thus contributing to its energy transition."

Volker Malmen, managing director of Ørsted in Germany stated: "We are delighted by the positive decision. This project is unique in its use of offshore wind energy for large-scale hydrogen production. No other renewable energy source can provide such reliably large quantities of green electricity for electrolysis. For this reason, the expansion of renewables and offshore wind power in particular must be aligned with the increased demand associated with hydrogen production. We see here an ideal opportunity for the further decarbonisation of German industry, and green hydrogen holds the key to sectoral decarbonisation. The WESTKÜSTE100 project is a key element for us in playing a pioneering role in green hydrogen as we do in offshore wind energy, in order to create a world that places its faith entirely on green energy."

Unique interlinking

What is special and innovative about the WESTKÜSTE100 project is the linking of different sectors within an existing regional infrastructure. This also includes the integration of green hydrogen in the existing process at Raffinerie Heide in a move intended to replace the use of grey hydrogen. In addition, part of the generated hydrogen will be transported via a newly built hydrogen pipeline to Heide's municipal utility for transfer to the natural gas grid. In a future stage, there are plans to supply a hydrogen filling station. All the milestones that are devised during the WESTKÜSTE100 project form the basis for the next, scaling stages. The vision for all partners is to build a 700 MW electrolysis plant, with the future prospect of making use of the waste heat and oxygen arising during the electrolysis process. Further plans include the production of climate-friendly aviation fuels and large-scale supply to gas grids.

Dr. Jörg Bergmann, CEO of Open Grid Europe GmbH stated: "The funding approval has brought us significantly closer to our project goal of carrying pure hydrogen in a pipeline forming part of the gas supply network. Our task now is to realise this unique energy transition project as quickly as possible. To do this we will need to clear the administrative and regulatory hurdles so that we and the other project partners can take the final investment decision for the start of construction next year."

Michael Riechel, chairman of the executive board of Thüga Aktiengesellschaft stated: "Our long-term target is an H2 quota in the gas grid of up to 100 percent by 2050. In the test run with a hydrogen addition of up to 20 percent in a section of the network comprising more than 200 domestic customers, Thüga and Heide municipal utility are setting a concrete precedent, the results of which will benefit the just under 100 municipal supply companies belonging to the Thüga Group on their way to creating decarbonised gas grids."

In the future manufacture of fuel, hydrogen from electrolysis and unavoidable CO₂ from a regional cement plant in Schleswig-Holstein will be used in the process. During the initial phase of the WESTKÜSTE100 project preparations will be made for converting the Lägerdorf cement plant to a more environmentally friendly (oxyfuel) combustion process.

Thorsten Hahn, CEO and chairman of Holcim (Deutschland) GmbH stated: "For us, as a manufacturer of building materials, the funding approval is a key milestone on the way to decarbonising cement production. Now all of us involved in WESTKÜSTE100 must move forward quickly,

decisively and dynamically in order to achieve our ultimate goal of cross-sectoral coupling on a large industrial scale in the coming years."

"We are delighted to contribute our expertise in the manufacture of green hydrogen by electrolysis and in the exploitation of CO₂ as a raw material for green methanol to this outstanding project. This will help further reinforce the leading role of German industry in hydrogen technologies," stated Sami Pelkonen, CEO Chemical & Process Technologies at thyssenkrupp.

Prof. Dr. Katja Kuhn, president of Westküste University of Applied Sciences, stated, "I am very proud of our involvement in this real-world laboratory as a university partner. We will be responsible for technical, legal and social aspects and will nurture close contact to our university networks through our Campus100 project. We are particularly delighted that our students will have the opportunity to take part in research associated with such an important energy transition project."

Dirk Burmeister, chief executive of the Region Heide development agency, stated: "The Heide region, with its ENTREE 100 initiative encompassing projects relating to the energy transition, is emerging as a hot spot of the green hydrogen economy in Germany and Europe. The early strategic orientation of an entire region is now paying off."

In the next stage of the project, scaling of the electrolysis plant in the order of 700 MW is planned, for which the electricity will be generated by an offshore wind farm. The project work conducted as part of WESTKÜSTE100 will lay the foundation for this and create the necessary know-how.

**JOINTLY SHAPING ENERGY
AND ECONOMIC POLICY**



Strengthening the voice of Europe

Wintershall Dea CEO Mario Mehren

Earlier this year Germany took over the EU Council Presidency at a time when Europe is facing a key challenge for the future. The Green Deal needs to be implemented and Europe's energy supply responsibly secured, while the economic turmoil caused by the corona crisis continues to determine the framework and the discussion. There are high expectations for Germany's EU Presidency.

Wintershall Dea CEO Mario Mehren is convinced that Germany can and must play a central role in Europe in mastering the challenge of ensuring an equally ecological and economical energy supply. Ultimately, however, this can only be achieved through a united EU in which national go-it-alone approaches are put aside and robust compromises are found. Here Chancellor Angela Merkel is tasked with playing a decisive role in shaping the European process over the next six months. And she has the chance to send a strong signal as she 'bids farewell' at the end of her tenure: for an economically strong Europe that sets standards in climate protection and modern energy provision.

The work of an international energy company like Wintershall Dea thrives on open borders and everything that distinguishes the EU politically and economically. The European market is economically strong like no other. As Europe's leading independent gas and oil

company, we benefit every day from the stable economic environment and the strong voice that the EU has in the world.

Historic task

In principle, Europe is well positioned to combine climate protection and energy security even in the economically extremely challenging times of the corona crisis. We Europeans just have to play our options wisely. The important thing here is that we need to be open to all productive technologies and use all our resources and opportunities to make energy supplies fit for the future - as quickly, safely and affordably as possible. Then, and only then, can Europe serve as a model for other countries and continents. Only then can Europe show the world how economic growth and prosperity can be combined in the long term with the key objectives of ambitious climate protection. This is a task of historic proportions for Europe. And, what's more, this is the historic task of Europe today.

**'The European market is
economically strong like no other.'**

Mario Mehren, CEO Wintershall Dea

'Natural gas makes the energy transition affordable and is already the cleanest conventional energy source.'

Mario Mehren, CEO Wintershall Dea

The very high environmental standards and technological expertise of European industry are important trump cards in this respect. The ecological footprint of the European gas and oil industry, for example, is around 20 per cent smaller than outside of Europe. At the same time, European E&P companies are working intensively to further reduce their CO₂ and methane emissions. Wintershall Dea is at the forefront of this commitment.

Internal energy market

The EU has a functioning internal energy market and benefits from its short distances. Take the example of natural gas. Europe needs gas to meet its climate targets. This is because natural gas makes the energy transition affordable and is already the cleanest conventional energy source. Last year, for example, switching from coal to natural gas for generating electricity saved over five million tonnes of CO₂ in Germany alone! But natural gas can also help us reduce emissions quickly and cost-effectively in the heating and mobility areas. Last but not least, natural gas is a valuable resource for producing CO₂-free hydrogen from it.

Open-minded

Both Germany and the EU want hydrogen as a clean energy carrier for the future. That's rightly so. But here, too, the approach taken must be open to all technological options and utilise all potential intelligently. In this regard, Germany in particular still needs to make significant

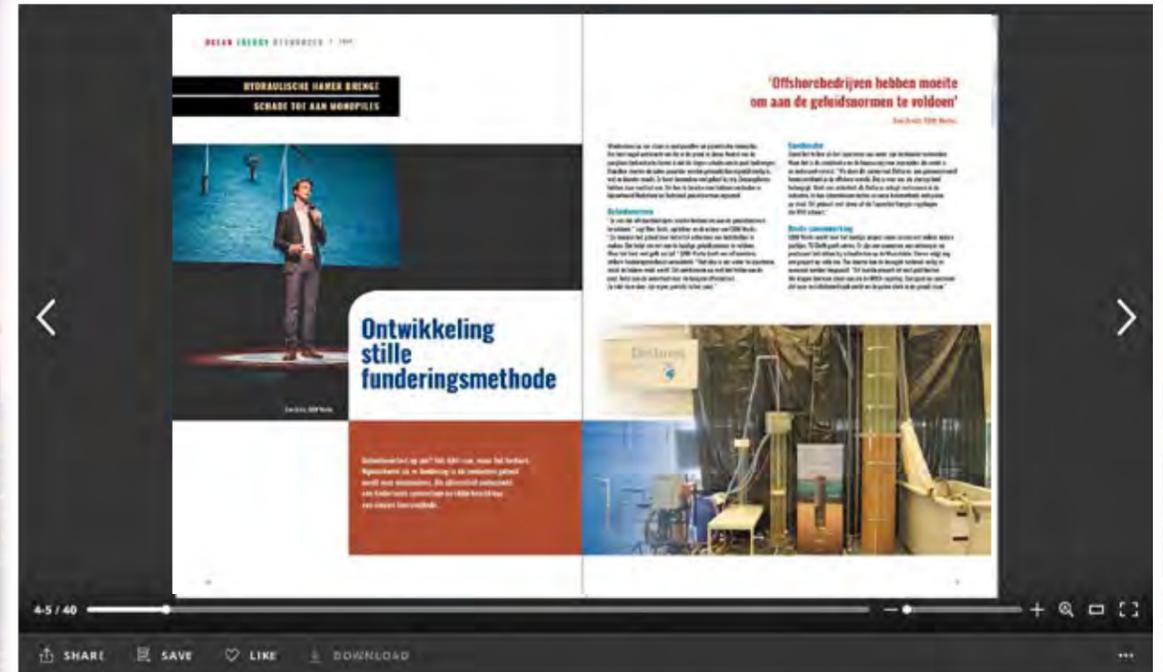
improvements to its 'National Hydrogen Strategy'. This is because with its clear price and volume advantages, decarbonised hydrogen produced from natural gas can compensate for the lack of renewable capacity and accelerate the market ramp-up for hydrogen technologies.

The EU has successfully diversified the gas market over the last ten years. Europe has more than 35 liquefied natural gas terminals, large storage capacities, a dense pipeline network within the EU through which gas can be transported in all directions, and efficient pipelines linking the EU to its main energy partners – Norway and Russia.

But it's also clear that as Europe's domestic natural gas production declines, Europe is threatened by a considerable import shortfall of up to 120 billion cubic metres by 2035. We therefore need further secure supply routes and must continue investing in the energy partnerships that have already proven their worth.

Europe is at a crucial stage in shaping its own economic and social future, and in redefining its role in the world, including as a model for other regions. As the largest economy in the EU, Germany has a special obligation in this respect. The coming months will be decisive in many ways. With the EU Council Presidency, Germany has a great opportunity to assume a positive leadership role. And, like any great opportunity, this entails considerable responsibility.

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Even voorstellen

Om YOUNG IRO leden de kans te geven zich te presenteren aan de vaderlandse 'offshore' industrie, heeft Ocean Energy Resources hen aangeboden als een soort van 'even voorstellen' platform te dienen. Voor de offshore 35-minners is het immers belangrijk om aansluiting te vinden bij de gevestigde orde. Aan het woord is ditmaal Sophie van Zanten.

Kun je jezelf kort introduceren?

Ik ben Sophie van Zanten. Ik werk nu ruim 4 jaar bij Fugro. Sinds 2018 ben ik ook onderdeel van het Young IRO bestuur en begin dit jaar ben ik de voorzitter geworden.

Wat is je achtergrond?

Ik heb Civiele Techniek gestuurd in Delft, met de specialisatie Waterbouwkunde. Zodoende ben ik veel met water en de offshore wereld in contact gekomen tijdens mijn studie. Ik heb onder andere een watermanagement project in Tanzania uitgevoerd en een stage bij Boskalis. Na mijn afstuderen ben ik bij Fugro in een traineeship gestart.

Wat zijn je ambities?

Van Young IRO hét platform maken waar young professionals van IRO-leden zich bij aansluiten om zakelijke vriendschappen te sluiten. Met het Young IRO bestuur streven we ernaar om onze passie voor innovatie en vernieuwing te delen met onze leden. We willen dat Young IRO leden geïnspireerd raken om zelf het toekomstbeeld van de offshore industrie te scheppen. Elke keer dat ze bij onze evenementen zijn geweest, willen we dat hun enthousiasme een boost heeft gekregen.

Waarom heb je ervoor gekozen om in de Nederlandse olie, gas & wind industrie te gaan werken?

Door mijn master kwam ik al veel in contact met de Nederlandse offshore bedrijven. Werken op zee vind ik heel interessant, de bijbehorende uitdagingen zijn heel complex. Daarnaast is Fugro een mooi bedrijf met veel expertise. De technologieën waarmee we werken en de innovaties die we ontwikkelen zijn ontzettend interessant. Door het traineeship heb ik op veel plekken mogen werken, waaronder in Leidschendam, Nootdorp en Houston. Ik leer elke keer weer wat nieuws. Ik vind het leuk om deze expertise bij elkaar te brengen en daarmee een waardevolle bijdrage te leveren in de ontwikkeling van wind op zee.

Wie is je grote voorbeeld?

Deze vraag vind ik lastig te beantwoorden. Voor mij hangt het voorbeeld sterk af van de levensfase en de specifieke uitdagingen. Er zijn meerdere mensen die mij inspireren en waar ik veel van kan leren. Voorbeelden zijn diegenen die met oog voor de mens een positieve impact maken op hun omgeving. Daar word ik blij van.

Waarom ben je lid geworden van Young IRO?

Ik was net terugverhuisd vanuit Houston toen het begon te kriebelen. Ik was benieuwd naar het bredere plaatje van de offshore industrie. Toen ik Young IRO leerde kennen, voelde ik me direct aangesproken door de missie. De nieuwe generatie de kans geven zich te ontwikkelen op professioneel vlak is belangrijk, zeker nu de sector voor de energietransitie staat en veel uitdagingen moet overwinnen.

Met Young IRO willen we dat bereiken aan de hand van drie hoofdthema's:

1. Innovatie voor een duurzame toekomst.
2. De nieuwe werk cultuur
3. Het creëren een inspirerende omgeving waarin zakelijke vriendschappen ontstaan.

Hoe belangrijk acht je deze samenwerking tussen verschillende generaties binnen IRO?

Ik ben ervan overtuigd dat door kennisdeling en samenwerking tussen verschillende generaties nieuwe ideeën ontstaan die bijdragen aan een toekomstbestendige, Nederlandse offshore industrie. Dat verschillende generaties elkaar ontmoeten en zich daadwerkelijk met elkaar verbinden is geen vanzelfsprekendheid, dat moet je stimuleren.

Geeft Fugro je de kans om Young IRO bij te wonen?

Ja, het werd zelfs door de CEO aangemoedigd om te solliciteren voor een positie binnen het Young IRO bestuur. We hebben ook een Young Fugro die mooie activiteiten organiseert, maar met Young IRO heb je ook de kans om op een laagdrempelige manier mensen te ontmoeten uit dezelfde industrie. Dat is heel waardevol voor zowel je netwerk als je inzicht in de marktontwikkelingen in de offshore.

Wat is jouw visie op duurzame energie en hoe kijk je tegen de energietransitie aan die nu plaatsvindt?

Ik denk dat wij als jongere generatie opgegroeid zijn in een tijd waar de energie transitie een groot en continu onderwerp is. De industrie bevindt zich op een kantelpunt met de energietransitie en de veranderende waarden in de samenleving. Dit vraagt om innovatie die bijdraagt aan een leefbare wereld, nu en in de toekomst.

'Toen ik Young IRO leerde kennen, voelde ik me direct aangesproken door de missie.'

Sophie van Zanten

bluestream

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BELANGRIJKE INFORMATIE OVER TOEKOMSTRELATIE EU-VK

DEZE PAGINA'S BEVATTEN NIEUWS VAN VAN IRO - BRANCHEVERENIGING VOOR DE NEDERLANDSE TOELEVERANCIERS IN DE OFFSHORE ENERGIE INDUSTRIE EN HAAR LEDEN.

GENOEMDE ACTIVITEITEN ZULLEN ALLEEN DOORGANG VINDEN BIJ VOLDOENDE BELANGSTELLING VANUIT DE LEDEN.

HEEFT U INTERESSE IN DEELNAME OF VRAGEN OVER:

➤ **BEURZEN** NEM CONTACT OP WASILIKA PUPOVAC - MOUTZOURIDIS, W.PUPOVAC@IRO.NL

➤ **HANDELSMISSIES** NEM CONTACT OP MET TJERK SUURENBROEK, TSUURENBROEK@IRO.NL

➤ **CURSUSSEN** NEM CONTACT OP MET BARBARA VAN BUCHEM, B.VANBUCHEN@IRO.NL

➤ **OVERIGE ZAKEN** NEM CONTACT OP MET IRO, VIA INFO@IRO.NL OF TELEFOONNUMMER 079-3411981.

Graag wijzen we u op de nieuwe communicatie vanuit de Europese Commissie over veranderingen rond belasting en douaneformaliteiten bij handel met het VK.

Onderstaand vindt u deze richtlijnen voor bedrijven, inclusief een checklist. De nieuwe regels zullen per direct ingaan na afloop van de transitie periode, op 1 januari 2021.



Brexit - Guide For Businesses



Brexit - Checklis



VOORAANKONDIGING IRO ALGEMENE LEDENVERGADERING

Wegens het coronavirus zal de IRO Algemene Ledenvergadering dit jaar **ONLINE** plaatsvinden op donderdag 19 november 2020. Meer informatie volgt.



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ONDERZOEKSPROJECT NAAR ZAKENDOEN IN MEXICO



Foto: Team RPM 2021

Wilt u zakendoen in Mexico? Wilt u meer informatie over de lokale markten van deze groeiende economieën? Bent u op zoek naar een potentiële zakenpartner, benieuwd naar de activiteit van uw concurrenten of heeft u een ander vraagstuk betreffende dit kansrijke land? Dan kan het Research Project Maastricht u helpen.

Research Project Maastricht (RPM) is een non-profit onderzoeksproject gelieerd aan de Universiteit van Maastricht. Het verricht jaarlijks bedrijfsspecifiek onderzoek in sterk groeiende economieën.

Multidisciplinair onderzoeksteam

Het multidisciplinaire team bestaat uit 10 topstudenten in de eindfase van hun studie. De expertise van het team varieert van International Business tot Rechten en van Econometrie tot University College. Verder heeft het team ervaring in consultancy en beheerst, of leert, het de Spaanse taal. In voorafgaande jaren voerde RPM onderzoek uit in opkomende economieën zoals Brazilië, China en India. Van januari tot april 2021 staat het team klaar om de mogelijkheden voor Nederlandse en Vlaamse bedrijven in Mexico te ontdekken, onderzoeken en evalueren.

Research Project Maastricht levert maatwerk, waarin het onderzoek afgesteld wordt op de vereisten van het bedrijf. Het project focust op het onderzoeken van zakelijke mogelijkheden voor bedrijven met internationale ambities en een mondiale oriëntatie, variërend van kleine en middelgrote bedrijven tot grote multinationals. In voorafgaande jaren

heeft RPM verschillende typen onderzoek uitgevoerd zoals markt- en sectoranalyse, concurrentieanalyse, ontdekken van investeringsmogelijkheden, nieuwe distributiekanaalen, en het vinden van nieuwe bedrijfspartners.

Wat wij u bieden

- Beschikking over een flexibel onderzoeksteam in Mexico
- Tijd- en kostenbesparing in:
 - Het ontdekken van nieuwe kansen voor uw bedrijf
 - Het overkomen van barrières bij het zakendoen in Mexico
- Relevante informatie over grote marktspelers in uw sector in Mexico
- Antwoorden op uw bedrijfsspecifieke vraagstukken

Wilt u de onderzoeksmogelijkheden voor uw bedrijf bespreken? Neem dan contact met ons op via contact@researchproject.nl, wij komen geheel vrijblijvend bij u langs.



Meer weten?

Neem een kijkje op onze website of in onze [Brochure](#).



STEUN DE KNRM EN MELD JE NU AAN VOOR HET CAPTAIN OF SALES EVENT 2020!

DEZE PAGINA'S BEVATTEN NIEUWS VAN VAN IRO - BRANCHEVERENIGING VOOR DE NEDERLANDSE TOELEVERANCIERS IN DE OFFSHORE ENERGIE INDUSTRIE EN HAAR LEDEN.

Jij als IRO lid en de vrijwilligers van de Koninklijke Nederlandse Redding Maatschappij delen hetzelfde werkgebied met alle prachtige elementen maar ook de gevaren. Als jij ook de KNRM een warm hart toedraagt en je zin hebt in competitie, spel, spanning, fun, Huis ter Duin, zee en strand, beetje sales, beetje netwerken en vooral ook ... voor het goede doel, de KNRM, dan is het KNRM-belevingsevent **Captain of Sales** iets voor jou!

Er zijn op dit moment 55 teams in verschillende branche teams, maar als IRO lid pas je natuurlijk perfect in het Offshore Team onder leiding van Koen van der Perk van Heerema. Het doel is 100 teams, dus mooi als je er bij bent samen met je teamgenoot.

Dat verdient meer uitleg. Toch?

Ik zal je puntsgewijs meenemen in dit bijzondere, maar nog onbekende evenement. Hopelijk is dat voor jou voldoende aanleiding om (kosteloos) in te schrijven.

Aanleiding

Verdere uitbreiding van het traditionele Reddersgala (www.reddersgala.nl) leidde vier jaar geleden tot het idee het gala ('s zaterdags) uit te breiden tot een tweedaags event, met op de vrijdag een competitieve belevingsdag. In de basis voor salesprofessionals, maar in de praktijk voor alle (ietwat gebekte) enthousiastelingen.

Doel

Middels een te gekke, actieve dag zo veel mogelijk geld ophalen voor de Koninklijke Nederlandse Redding Maatschappij. Dat is het einddoel. Gedurende de dag staat voor de deelnemers echter een ander doel op de voorgrond: (naast enorm veel plezier) het winnen van de dag en worden uitgeroepen tot Captain of Sales!

Hoe verdient een team geld?

Grofweg op drie manieren. Ten eerste door tijdens de dag de zeer diverse en ietwat absurde opdrachten als team (van 2 personen) zo goed mogelijk te doen. Dat resulteert namelijk in prijzengeld. Écht geld! Ten tweede door items aan te bieden op de veilingpagina van het event. Dat mogen nieuwe en gebruikte artikelen zijn, maar ook diensten of nog breder. De verkoopopbrengst van de veilingitems

komen ten goede aan het teamtotaal (en uiteindelijk dus aan de KNRM). En ten derde door via het eigen netwerk zelf geld op te halen. Telefonisch, per mail of anderszins. Waarbij elk team een eigen donatiepagina heeft waarnaar kan worden doorverwezen. Wie de dag wil winnen, zal alle kanalen nodig hebben, waarbij met name het netwerk het grote verschil kan maken. Maar er zijn ook best veel teams die zich willen beperken tot de eerste (en hooguit het tweede) kanaal. Zij willen hun netwerk met rust laten. Dat mag. En ook dan vinden wij het geweldig als iemand meedoet. Maar winnen zul je dan niet.

Wat kost deelname voor een team?

Niets. Deelname is gratis en geheel inclusief (lunch etc.)

Waar en wanneer vindt het event plaats?

Vrijdag 27 november, Grand Hotel Huis ter Duin, Noordwijk aan Zee. Het programma loopt globaal van 9.00 uur tot 16.00 uur en sluit af met een gezellige netwerkborrel (om het weekend in te luiden). Zie voor extra info www.captainofsales.nl en meld je aan!

Aan wat voor opdrachten moet je denken?

Daar is geen rode draad in te ontdekken. Maar wie van spel, competitie en onvoorspelbaarheid houdt, komt op deze dag volop aan zijn trekken. Het ene moment waant een deelnemer zich in Expeditie Robinson, dan weer in Sterrenslag en weer een moment later in Wie is de Mol? of in De Slimste Mens. Het is van alles wat. En dus kun je je amper voorbereiden en wordt er een beroep gedaan aan je volledige arsenaal aan skills en eigenschappen. Het enige vaste, terugkerende onderdeel is Dragons Den (bekend van tv).

Zie jij jezelf op vrijdag 27 november al in allerlei opdrachten storten, samen met je teamgenoot? Ik wel! En de 1.400 vrijwilligers van de KNRM zullen je dankbaar zijn.

Hoor graag van je. Wordt vervolgd.

Enthousiaste groet,
Jeroen Wooning
Relatiebeheerder / Fondsenwerver
j.wooning@knrm.nl / +31 6 82 60 61 69

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SPACE@SEA



17 Europese partners, waaronder 3 IRO leden MARIN (Maritime Research Institute Netherlands), Bluewater Energy Services en Mocean Offshore, streven naar duurzame en betaalbare werkruimte op zee door de ontwikkeling van een gestandaardiseerd en kostenefficiënt modulair eiland met lage ecologische impact, genaamd Space@Sea.

Tijdens de conferentie *Paving the Waves* van 6-8 oktober 2020 staat een volledige dag in het teken van Space@Sea. Lees meer over het project via <https://spaceatsea-project.eu> of bekijk het conferentieprogramma op www.pavingthewaves.org.

Meet our Members

The Offshore Energy supply industry in the Netherlands belongs to the Top 5 of the world. The IRO members consist of a wide variety of both multinationals and SMEs. They represent the entire supply chain within the Oil, Gas, Offshore Renewable and Marine Energy industry, with activities covering: Engineering & Consultancy, Construction & Fabrication, Plant & Equipment Supply, Contracting & Installation, Exploration & Production and Personnel & HSE, both for offshore upstream oil & gas and offshore renewables (wind and marine energy).

Meet the Dutch Suppliers in the Offshore Energy Industry

[Read more >](#)



Sea Rescue Gear BV



Heerema Marine Contractors



C-Ventus Offshore Windfarm Services BV



DCN Diving BV

ZOEK VERBINDING EN BLIJF ZICHTBAAR VIA ONLINE BEDRIJFSPROFIEL!

Juist in deze onzekere tijd is verbinding met elkaar zoeken en zichtbaar blijven zo ontzettend belangrijk! Wij willen daar voor de IRO leden graag onze verbindende rol in blijven vervullen. Op onze website is een aantal middelen beschikbaar om je bedrijf goed te kunnen profileren en zichtbaar te blijven. Maak hier gebruik van! Hoe? Dat lees je hieronder:

Online bedrijfsprofiel

Op onze website is een bedrijfsprofiel met contactgegevens aangemaakt. Graag ontvangen we via info@iro.nl hiervoor het volgende:

- **Bedrijfslogo**
- **Profieltekst** (van max 250 woorden, Engelstalig)
- **Foto** (representatief voor core business, liggend, high res, min 1000 x 750 en max 2400 x 1800 pixels).

Persberichten

Persberichten ontvangen wij graag per e-mail. De berichten worden op de homepage geplaatst en tevens gekoppeld aan je bedrijfsprofiel, welke te delen is via LinkedIn, Twitter, Facebook en E-mail.

LinkedIn IRO

Volg onze [IRO company page](#) op LinkedIn en blijf op de hoogte van evenementen, trends en overige publicaties!

Wij zijn ervan overtuigd dat ons netwerk van innovatieve en veerkrachtige topspelers in de Offshore Energie Industrie zich krachtig door deze op veel fronten heftige situatie heen zal slaan. Zichtbaar blijven helpt hierbij zeker. Maak gebruik van de mogelijkheden!



ELIS

NL.ELIS.COM

ELIS is uw partner voor veilig en hygiënisch werken in de Oil & Gas Industry en Offshore Renewable Industry met bedrijfskleding, schoenen, PBM's, poetsdoeken, absorptiematten en vloer- en bedrijfshygiëne.



FIBREMAX

WWW.FIBREMAX.NL

FIBREMAX produceert de sterkste en meest duurzame synthetische kabels ter wereld. De sterkste oplossing voor renewable energy, heavylift en kraan projecten.

BEURSGENOTEERD

ADIPEC 2020, 9 - 12 NOVEMBER 2020, ABU DHABI - **UITGESTELD**

In verband met het Coronavirus, heeft de beurs organisatie ADIPEC 2020 verplaatst naar **8-11 november 2021**. Boek nu je stand in ons Holland Paviljoen via onze website! Contact: vy.pupovac@iro.nl

OSEA 2020, 24 - 26 NOVEMBER 2020, SINGAPORE - **GEANNULEERD**

Geannuleerd door beurs organisatie in verband met het Coronavirus. Info via NMT, lacet@maritimetechnology.nl

OCEAN ENERGY EUROPE, 1-2 DECEMBER 2020, BRUSSEL, BELGIË

Open voor registratie! www.maritimetechnology.nl

WINDENERGY HAMBURG, 1 - 4 DECEMBER 2020, HAMBURG, DUITSLAND

Slechts een aantal stands beschikbaar. Info via dutchvillage@nwea.nl

Naast de beurzen waar IRO een Nederlands paviljoen organiseert, hebben wij ook contacten met externe partijen omtrent de organisatie van diverse wereldwijde evenementen. Neemt u gerust contact op met IRO als u vragen heeft over internationale evenementen die niet in de beurskalender vermeld staan.

Voor meer informatie, raadpleeg www.iro.nl/calendar

SAVE THESE DATES!

We hebben voor 2021, naast OTC en ADIPEC, nog een aantal interessante beurzen gepland. Noteer de data in ieder geval alvast in de agenda, meer info volgt binnenkort!



Oil & Gas Asia 2021

Van 8-10 juni 2021 vindt in het Maleisische Kuala Lumpur de 18e editie van de regio's nummer 1 olie en gas beurs, Oil & Gas Asia, plaats. In het Kuala Lumpur Convention Centre worden de nieuwste technologieën, apparatuur en machines getoond op het gebied van de olie-, gas- en petrochemische technologie.



SPE Offshore Europe 2021

Van 7-10 september 2021 staat Aberdeen in het teken van SPE Offshore Europe. Thema van deze editie is 'Energie transitie'. Offshore Europe wordt beschouwd als Europa's toonaangevende E&P event. Er zijn veel positieve ontwikkelingen en kansen voor Nederlandse bedrijven in de Noordzee, een goed moment om jezelf in Aberdeen te laten zien!

SPE Offshore Europe 2021 wordt gehouden op een nieuwe ultramoderne locatie: TECA, The Event Complex Aberdeen in Dyce. De locatie is gelegen nabij de internationale luchthaven van Aberdeen. De TECA zal 48.000 m² interne tentoonstellingsruimte omvatten.

IRO KALENDER BEURZEN, MISSIES, CURSUSSEN EN BIJEENKOMSTEN 2020 / 2021

LET OP! IN VERBAND MET HET CORONA VIRUS KUNNEN EVENEMENTEN UITGESTELD ZIJN OF AFGEZEGD WORDEN.

27 - 28 OKTOBER	OFFSHORE ENERGY + NAVINGO CAREER EVENT HYBRIDE
9 - 12 NOVEMBER	ADIPEC UITGESTELD
12 NOVEMBER	INTERNATIONAL RELATIONS & COMMUNICATIONS COMMITTEE N.T.B.
19 NOVEMBER	ALGEMENE LEDENVERGADERING ONLINE
24 - 26 NOVEMBER	OSEA GEANNULEERD
1 - 2 DECEMBER	OCEAN ENERGY EUROPE BRUSSEL, BELGIË
1 - 4 DECEMBER	WINDENERGY HAMBURG HAMBURG, DUITSLAND
10 DECEMBER	BESTUURSVERGADERING SCHIEDAM
10 DECEMBER	INTRODUCTIECURSUS 'OFFSHORE ENERGIE: VAN FOSSIEL TOT RENEWABLE' ROTTERDAM

2021

27 - 29 APRIL	WINDEUROPE COPENHAGEN 2021 KOPENHAGEN, DENEMARKE
3 - 6 MEI	OTC HOUSTON, VS
8 - 10 JUNI	OIL & GAS ASIA KUALA LUMPUR, MALEISIË
23 - 26 JUNI	CONGRESO MEXICANO DEL PETRÓLEO MONTERREY, MEXICO
7 - 10 SEPTEMBER	OFFSHORE EUROPE ABERDEEN, SCOTLAND
1 OKTOBER T/M 31 MAART	DUBAI EXPO DUBAI, V.A.E.
8 - 11 NOVEMBER	ADIPEC ABU DHABI, V.A.E.

VOOR DE MEEST ACTUELE INFORMATIE, CHECK DE ONLINE IRO CALENDAR

DEZE PAGINA'S BEVATTEN NIEUWS VAN VAN IRO - BRANCHEVERENIGING VOOR DE NEDERLANDSE TOELEVERANCIERS IN DE OFFSHORE ENERGIE INDUSTRIE EN HAAR LEDEN.

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IRO CURSUSSEN IN HET MARITIEM MUSEUM FYSIEK OP LOCATIE

DEZE PAGINA'S BEVATTEN NIEUWS
VAN VAN IRO -
BRANCHEVERENIGING
VOOR DE NEDERLANDSE
TOELEVERANCIERS IN
DE OFFSHORE ENERGIE
INDUSTRIE EN HAAR LEDEN.

De IRO cursus 'Offshore energie: van fossiel tot renewable', inclusief bezoek aan de unieke Offshore Experience, vindt weer fysiek plaats, met maximaal 7 personen: dus persoonlijke aandacht gegarandeerd!

Tijdens deze cursus zullen de richtlijnen van het RIVM in acht worden genomen. Zie [hier een impressie](#).
Check de online IRO calendar voor meer actuele informatie en aanmelden.



1-DAAGSE CURSUS 'OFFSHORE ENERGIE: VAN FOSSIEL TOT RENEWABLE', INCLUSIEF BEZOEK AAN UNIEKE OFFSHORE EXPERIENCE

Inhoud cursus

- Cursus voor niet-technische medewerkers of nieuwkomers in de olie- en gasindustrie
- Goed en globaal inzicht in de hele upstream keten van het opsporen tot het verwerken van olie en gas
- Overzicht van het wereldwijde energievraagstuk, waaronder hernieuwbare energie
- De processen en methodes die gebruikt worden voor exploratie, productie, transport en opslag
- Actieve deelname aan de Offshore Experience in het Maritiem Museum Rotterdam

Locatie: Maritiem Museum Rotterdam

Kosten: € 495,- excl. BTW Het cursusgeld is inclusief lesmateriaal en lunch.

Voertaal: Nederlands (Engels indien Engelstaligen in de cursus)

Tijd: 08.30 - 17.00 uur

Beschikbare data 2020: 10 december

Check de online [IRO kalender](#) voor meer informatie en aanmelden. (foto: Marco de Swart)

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BUSY DAYS FOR BALDER AND SLEIPNIR



Sleipnir broke its own record with 10,100 mT jacket lift



Early August the Sleipnir broke its own record with 10,100 mT jacket lift. The SSCV has safely and sustainably removed Shell's 10,100 mT Brent Alpha jacket.

This project is Sleipnir's fourth decommissioning job for this summer. The vessel will continue to be busy in the North Sea before swapping the largest lifts for one of the smallest with the installation of Dana Petroleum's P11-Unity Platform later this year.

So far, Sleipnir has safely removed and transported more than 43,900 mT of decommissioned offshore infrastructure for recycling over this summer campaign.

For the Brent Alpha jacket removal, Sleipnir arrived at the Brent Field located 186 km northeast of Scotland's Shetland Islands on July 23, 2020 and completed the project by offloading the jacket onto the quayside at the AF Miljøbase decommissioning site in Vats, Norway on August 11, 2020.

Mid-August Heerema's DCV Balder has installed Pemex's Yaxche-C jacket and topside on behalf of client Cotemar S.A de C.V. This project is Heerema's first for Cotemar, and it was executed safely with no incidents and on schedule as a result of excellent collaboration between the parties.

For the Yaxche-C installation, Balder arrived at the Bay of Campeche, started work on August 8, and completed the Yaxche-C jacket and topside installation on August 15.

The jacket weighed 700 MT, the four skirt piles 125 MT each, and the topside 850 MT.

DEME OFFSHORE SECURES DOGGER BANK CONTRACT

650 km of inter-array cable to be installed



DEME Offshore has been awarded an EPCI contract for the inter-array cables at the Dogger Bank A and Dogger Bank B wind farms in the UK, the first two phases of the 3.6 GW Dogger Bank Wind Farm which is the world's biggest offshore wind farm under development.

The scope includes the engineering, procurement, construction and installation of the subsea cables for the combined 2.4 GW wind farm. DEME Offshore will supply, install and protect 650 km of 66 kV inter-array cables and all related accessories.

Production of the cable for Dogger Bank A and Dogger Bank B will start in 2021 and will be installed using the state-of-the-art DP3 cable installation vessel Living Stone. She was selected based on her cable capacity of more than 10,000 tonnes, and proven track record. The Living Stone boasts a DEME-designed dual-lane system, consisting of two cable highways – one for laying the cable and one where the next cable can be simultaneously prepared and have the cable protection system (CPS) installed. This significantly reduces the time needed for preparing the cables, minimises manual handling, increases the vessel's workability and ultimately, improves production rates. DEME Offshore will work closely with SSE Renewables and Equinor to engage with the UK supply chain in the delivery of the project.

Over 100,000 tons of quality heavy steel plates in stock

AncoferWaldram Steelplates B.V. (AWS) is a stockholding wholesaler and steel service center, specializing in the supply of hot-rolled heavy carbon steel (quarto) plates, and profiled parts for more than 40 years now. Over the years, AWS has developed into a business that sets the standard for its industry.

Plates from stock or profiled parts

The choice is yours! It is the combination of comprehensive stocks of over 100,000 tons of heavy carbon steel plates plus the sophisticated profiling plant that gives AWS a decisive lead in experience, product range and customer service.

STRUCTURAL STRENGTH IN HEAVY STEEL PLATES

Delivery program

- LR-A, LR-DH36, LR-EH36 (+Z35),
- VL-D36, VL-E36 (+Z35), VL-E36TM, VL-F36TM
- S235JR / S355J2+N / S355K2+N
- S355G10+M / S355MLO / S355G10+N / S355NLO /
- S420G2+M / S420MLO / S460G2+M / S460MLO
- S355NL / S355ML / S460NL (+Z35) / S460ML
- Dillimax 690E (+Z35) – 965T / S690QL1 (+Z35) / S890QL / S960QL
- Dillidur 400 / 450 / 500 / 550
- Dicrest®5 (HIC resistant), SA 516 Gr. 60 / 65 / 70
- P265GH / P295GH / P355GH, P355NH /
- P355NL2 / P460NH / P460NL2
- SA 516 Gr. 60, SA 516 Gr. 70, SA 537 Cl. 1



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