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**Upgraded crane
fully operational**

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**PACIFIC OSPREY IS BRINGING NEW FORCE
TO OFFSHORE WIND SUPPLY CHAIN**



**Upgraded crane
now fully operational**

Swire Blue Ocean (SBO) announced that the Pacific Osprey is officially returning to operations with an extended crane boom designed to install the latest generation of wind turbines. With this upgrade, Pacific Osprey ranks among the most sophisticated windfarm installation vessels on the market, offering high-end solutions for even the most ambitious offshore wind projects.



“It is an amazing time for all of us in the Company and in offshore wind. Pacific Osprey is bringing new force to the offshore wind supply chain and we look forward to seeing her back in operations. Our teams have worked hard in partnership with various third parties to upgrade the crane capacity of our vessel, and I am very proud of the high-quality delivery I have seen from everyone who contributed to this upgrade. We look forward to exciting times ahead,” says Chief Executive Officer, SBO, Mikkel Gleerup.

The installation project was completed successfully on 30 May. The lift of the boom onto Pacific Osprey was executed on 14 April by NOV with the use of two shore cranes and was followed by the installation of the wires and hooks. After Pacific Osprey had passed a series of load tests, the final commissioning phase was executed on 8 May and resulted in the obtention of an updated class approval. In parallel, NOV performed a complete training of all SBO’s crane operators to ensure they are fully prepared for operation of the new crane.

In the project’s final days, SBO contracted Semco Maritime to install the hook baskets and hook basket supports; this scope required insertion of a steel structure through the vessel’s accommodation. Semco Maritime also elevated the navigation lights to ensure visibility when the new boom is at rest.

“We are very happy to see Pacific Osprey completed with her extended crane boom. Our contractors and subcontractors have worked with an exceptional level of cooperation throughout the various phases of the installation, and our crew members have provided excellent support to the teams at all times,” says Head of Marine Operations, SBO, Kim Tribler.

COVID-19 PANDEMIC THROUGH THE EYES OF THREE DANISH CEOs

Climate targets and industry participation in recovery



Henrik Poulsen, CEO and President at Ørsted.

Though governments around the world are busy confronting the economic and health emergencies brought on by the COVID-19 pandemic, they must not lose sight of the historic opportunity that has presented itself. Now is the time to create the conditions for a society-wide transition to a low-carbon sustainable future.

The COVID-19 pandemic must not lead governments to lower their climate ambitions. Accelerating the transition to a low-carbon sustainable economy can both drive the recovery and build resilience for the future.

Other countries could look to Denmark for inspiration on climate initiatives that will also contribute to economic recovery. The country is currently taking real action to achieve its target of reducing carbon dioxide emissions by 70% by 2030 and reaching zero net emissions by 2050.

As the CEOs of the Danish corporations Ørsted, Grundfos and Novo Nordisk, respectively, Hendrik Poulsen, Mads Nipper and Lars Fruergaard Jørgensen have been appointed by the Danish government to chair public-private 'climate partnerships' created to pursue climate-policy goals. Their job has been to develop comprehensive roadmaps for reaching emissions-reduction targets within our respective sectors in the most cost-efficient way.

Having chaired these partnerships for the past seven months, the three CEOs believe governments around the world would benefit greatly both from this model of collaboration and from our specific findings on how to make the manufacturing, energy, and life science and biotech sectors nearly carbon-neutral by 2030. As countries spend trillions of dollars to protect jobs and livelihoods during the pandemic, it is crucial that they shape such stimulus in ways that will ensure a long-term sustainable recovery.

The World Health Organization estimates that the annual capital needed to meet the Paris climate agreement's emissions-reduction targets amounts to some 1% of global GDP per year.

Governments thus should capitalize on the current opening to direct their mid- and long-term recovery plans toward the dual objective of financial stimulus and decarbonization.

Pursuing these goals simultaneously is not merely a moral imperative. It also makes economic sense. Governments urgently need to unlock the private sector's capacity for innovation and investment, starting with concrete and ambitious emissions-reduction targets for 2030 and 2050. Once such targets are in place, governments should involve businesses in developing sector-specific roadmaps for decarbonization.

The logic of leveraging the private sector is simple. Business leaders are in the best position to identify economically sound carbon-reduction pathways within their own sectors, and they have first-hand knowledge of what is needed from governments to unlock private-sector investments. This is what is called the Danish formula for public-private collaboration.

The analyses the CEO's have conducted in their climate partnerships have revealed opportunities for decarbonization that many would have thought impossible just a few years ago. By applying and scaling up existing technologies in a cost-efficient way, the manufacturing, energy, and life science and biotech sectors could become nearly carbon neutral as soon as 2030. In addition, these sectors also provide technologies and services that have the potential to drive emission reductions across other sectors. This includes energy-saving products and services, and replacing fossil fuels with green electricity to decarbonize transportation and other industries.

Hence, their recommendations have global applications, both for countries in a nascent stage of decarbonization and for those that are already well on their way. The first key takeaway is that governments should set ambitious national emissions-reduction targets for each economic sector, thereby providing transparency and long-term certainty for companies and investors.

Second, all countries need to create conditions for a significant increase in renewable-energy production, green electrification, and improved energy efficiency. Green business is good business: wind and solar power are now the cheapest options for two-thirds of the world, and energy efficiency improves economic competitiveness while benefiting consumers.

Third, governments should adjust their regulatory frameworks to maximize investment in innovative technologies - such as heat pumps, renewable hydrogen, and biofuels - through increased public and private research, development, and deployment.

Similarly, public procurement and fiscal policies should be reformed to strengthen incentives that encourage low-carbon activities and investments. And businesses around the world need to take responsibility beyond their own direct emissions, by pushing for similar reductions across their global value chains.

Beyond these broad recommendations, Hendrik Poulsen, Mads Nipper and Lars Fruergaard Jørgensen are keen to share with governments and other businesses insights from their specific action plans on how to decarbonize manufacturing, energy, and life science and biotech as cost-efficiently as possible. The CEOs encourage policymakers and industry leaders to build on these lessons as they shape the economic recovery and accelerate the green transition.

"Collectively, we need to make sure that the COVID-19 pandemic does not lead us back to the same 'business as usual' that brought on the climate crisis in the first place. By applying the model and principles we have enunciated, all societies can do more than just recover; they can make themselves future-fit, too. That is the right approach both environmentally and economically."

Original article: Project Syndicate.

Authors: HENRIK POULSEN - CEO of Ørsted, MADS NIPPER - CEO of Grundfos, LARS FRUERGAARD JØRGENSEN - CEO of Novo Nordisk.

‘Green Jade’ set to be directly employed on local wind farm projects in 2023



In an industry milestone, joint venture CSBC-DEME Wind Engineering (CDWE) has initiated the early works contract for the very first floating heavy lift and installation vessel to be built in Taiwan. To be named ‘Green Jade’, the vessel has an exceptionally high transport and load capacity and will be built at CSBC in Taiwan for delivery in 2022 for deployment in the flourishing local offshore wind market.

CSBC-DEME WIND ENGINEERING (CDWE)

ENTERS INTO EARLY WORKS CONTRACT

CDWE, Taiwan's first offshore wind EPCI contractor, was established in February 2019 by CSBC, the largest shipbuilder in Taiwan, and DEME Offshore.

Auspicious name

Both partners have agreed to start up the early works and the ordering of critical packages for their pioneering new asset, 'Green Jade'. The name symbolises Taiwan's renowned Yushan, the Jade Mountain. At a dizzying height of 3,952 m above sea level, Jade Mountain is the highest peak in East Asia and gives Taiwan one of the highest elevations of any island in the world. Additionally, the name 'Green Jade' reflects this trail-blazing vessel's contribution to reducing emissions, and its role in bringing clean, green energy to Taiwan's residents. By choosing such an auspicious name, CDWE wants to highlight our ambitions to develop the offshore wind industry and to successfully 'scale the summit' together.

Hai Long and Zhong Neng contracts

In October last year, CDWE signed Taiwan's first comprehensive, large-scale Balance of Plant (BOP) Preferred Supplier Agreement with the Hai Long Offshore Wind Project. This marks an important step in realising industry compliance with the 'Industrial Relevance Plan Goals' that the Taiwan Government has mandated in the offshore wind industry.

Swiftly following on from this first success, CDWE has signed two contracts with Zhong Neng Wind Power Corporation Preparatory Office for the 300 MW Zhong Neng offshore wind farm project. The contracts comprise the transportation and installation of foundations, as well as a Preferred Bidder Agreement for the transportation and installation of the wind turbines.

'Green Jade' will be deployed on both projects. CDWE is committed to meeting localisation requirements and assisting with the development of the offshore wind industry, and a successful and sustainable supply chain in Taiwan, optimising local materials and skills.

Next generation

'Green Jade' will feature a high-tech, 4,000-tonne capacity crane and DP3 capability. The vessel's deck space has been maximised, enabling this

unique asset to transport a multitude of the heaviest monopiles, jackets, wind turbine components and structures in a single shipment. With this exceptional combination of high load and lifting capacity, 'Green Jade' can transport and install the next generation of foundations and giant multi-megawatt wind turbines in the most cost-effective way. At 216.5 metres long, 'Green Jade' can comfortably accommodate a crew of up to 160 people.

Green credentials

Environmental considerations are an important element of the vessel design. 'Green Jade' has dual fuel engines and will have a Green Passport and Clean Design notation. 'Green Jade' will also have other environmental innovations on board, including a waste heat recovery system that converts heat from the exhaust gases and cooling water to electrical energy, in addition to various other fuel-saving measures.

This is a historic moment in Taiwan's offshore wind development and indeed for the Taiwanese shipbuilding sector, as this dedicated offshore installation vessel is the first of its kind to be built in Taiwan for the local renewables market.

Contribution

Hai Long EPCI Director, Felipe Montero, enthused: "Hai Long and CDWE started this partnership by signing a MOU on March 9th 2018 before the allocation round took place. The BOP conditional contract was signed in October 2019, covering EPCI for the foundations, inter-array cables & export cables and the T&I of the turbines, giving CDWE their biggest scope and contract so far. This also allows them to participate from the beginning of the development until the end of the construction. Hai Long is delighted to see CDWE taking steps to construct the first offshore installation vessel in Taiwan. We are very proud of having contributed to this milestone which demonstrates Hai Long's commitment to supporting the development of the local supply chain. Hai Long will continue to collaborate with CDWE on cultivating a sustainable local supply chain, while exploring more opportunities in supporting the localisation policy."

'The Hai Long and Zhong Neng Projects have played an integral part in our decision to invest in an installation vessel.'

Hugo Bouvy,

Managing Director DEME Offshore



Localisation

Frank Rijnja, Procurement Director of the CIP-CSC co-developed Zhong Neng Offshore Wind Project, said: “Zhong Neng awarded the Foundation T&I scope for the 300MW Zhong Neng Offshore Wind Farm to CDWE in December 2019. One of the reasons was to support the government’s localisation policy and to provide CDWE with confidence, enabling the company to take the decision to invest in a locally built and state-of-the-art installation vessel. We believe Zhong Neng’s firm order to CDWE will create high value jobs for Taiwan’s shipbuilding industry. This cooperation between Zhong Neng and CDWE resulted in the successful submission and IDB approval of Zhong Neng’s Localisation Proposal.”

Promising future

Robert Tseng, Chairman of CDWE, comments: “The establishment of CDWE is a perfect combination of DEME’s unrivalled strength in the offshore wind power segment and CSBC’s leading position in shipbuilding, vessel operation and foundation fabrication in Taiwan’s offshore wind farm development. CDWE, the localised Taiwanese offshore engineering company has demonstrated its reliability and capability to the clients by winning various iconic T&I or BOP projects, and by playing a key role in bringing Taiwan’s offshore engineering capabilities to a higher level. This key role and strength of CDWE will be further enhanced by investing in this Locally built/Locally owned/Locally operated Main Installation Vessel, and I do believe ‘Green Jade’ will shape a promising and flourishing future for Taiwan’s offshore wind business.”

Dynamic

Hugo Bouvy, Managing Director DEME Offshore, concludes: “We are very excited to initiate the early works of the first floating offshore installation vessel in Taiwan. With ‘Green Jade’ we will be uniquely positioned to meet the requirements of the Taiwanese offshore wind market, and to be an integral part in the country’s offshore wind development ambitions. Taiwan is a pioneering and dynamic renewables market with plenty of opportunities for CDWE, a leading company in the global offshore wind industry.”

‘Our commitment to this market is clear to see from the substantial investment in ‘Green Jade’ and the local presence of our highly-skilled offshore wind professionals.’

“The Hai Long and Zhong Neng Projects have played an integral part in our decision to invest in an installation vessel. They have offered us an extensive scope of works beyond the Government’s Bureau of Energy’s localisation requirements, and are our anchor projects until Round 3 projects commence, giving confidence to our internal stakeholders and lenders that this vessel will have a strong pipeline of work and can be integral to Taiwan’s offshore wind development ambitions.”

We're building more and larger wind turbines

Our offshore wind turbines keep growing. The 1,500th wind turbine is more than 16 times more powerful than our 1st offshore wind turbine.

Boeing 747-8
Length: 76m



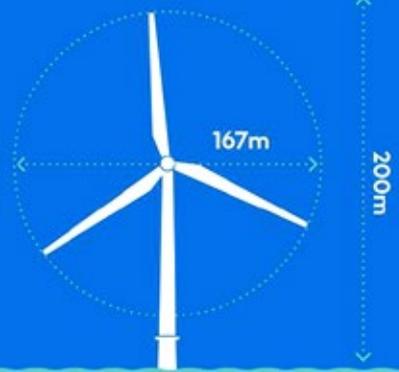
Wind turbine no. 1
Vindeby, Denmark
Year: 1991
Diameter: 35m
Capacity: 0.45MW



Wind turbine no. 500
Walney, UK
Year: 2012
Diameter: 120m
Capacity: 3.6MW



Wind turbine no. 1,000
Gode Wind 1 & 2, Germany
Year: 2016
Diameter: 154m
Capacity: 6MW



Wind turbine no. 1,500
Borssele 1 & 2, The Netherlands
Year: 2020
Diameter: 167m
Capacity: 8MW



Ørsted reaches new offshore wind milestone with turbine number 1,500

Mid June Ørsted has reached another milestone in its expanding offshore wind business with the installation of offshore wind turbine 1,500. Ørsted is set to more than double its offshore wind capacity in the coming five years using ever larger turbines.

Ørsted is the first offshore wind developer to reach this significant milestone. Before construction start at Borssele 1 & 2, Ørsted had already installed 6.8GW offshore wind capacity globally, which annually supplies green electricity for the equivalent of 6.6 million households. Ørsted is currently constructing 3GW of offshore wind and aims to have installed a total of 15GW by 2025 in Denmark, Germany, the Netherlands, Taiwan, UK and the US.

Anders Lindberg, Executive Vice President, Offshore EPC & QHSE, says to OER: "Offshore wind has matured at a rapid pace and can now be considered a cornerstone in the green transformation many places in the world. The 1,500 offshore wind turbines installed by Ørsted will contribute significantly to a greener future, but there's no doubt that the potential of

offshore wind reaches far beyond that. Today, offshore wind power is not only a clean, but also a cost-competitive alternative to power generated by burning of fossil fuels."

In 2019, the International Energy Agency (IEA) estimated that offshore wind power, even if only confined to windy regions within 60km from shore, has the potential to globally generate up to 36,000 terawatt hours of renewable electricity per year. That would outstrip current global electricity demand of 23,000 terawatt hours. The IEA also concluded that offshore wind power could become the largest source of electricity generation in Europe by 2040. According to European Commission scenarios, Europe will need 450GW of offshore wind power to reach zero emissions by 2050. This is roughly 20 times more offshore wind power than has been installed today.

Ørsted installed the world's first offshore wind turbine at Vindeby, Denmark, in 1991. The entire offshore wind farm, consisting of 11 turbines, had a capacity of 5MW - a lot less than the capacity of a single modern offshore wind turbine. In 2012, 21 years after Vindeby, Ørsted installed its 500th turbine, which was achieved at Walney Offshore Wind Farm in the UK. The 1,000th followed only four years later at the German Gode Wind 1 & 2 project.

**SHELL AND ENECO ARE PARTICIPATING
IN TENDER HOLLANDSE KUST (NOORD)**

Creation of green hydrogen hub in Rotterdam



Marjan van Loon, President-Director of Shell Nederland

Shell Nederland is working together with partners to create a green hydrogen hub in the port of Rotterdam. Shell aims to produce green hydrogen on the Tweede Maasvlakte using green electricity from wind power. This wind power will preferably come from the Hollandse Kust (noord) offshore wind farm. Through their joint venture CrossWind, Shell and Eneco are participating in the tender for this wind farm. Both companies have issued guarantees to CrossWind for investments in the construction and operation of Hollandse Kust (noord).

The Netherlands is working hard to increase the amount of renewable power generation, for example by building offshore wind parks on a large scale. This approach affords the Netherlands an excellent position to become the hydrogen hub for Northwest-Europe, made possible due to its unique location and offshore wind potential in the North Sea and its extensive transport network of gas pipelines.

The Netherlands will need both green electrons and green molecules in order for the energy transition to succeed. Green hydrogen can play an important role in the decarbonisation of industry, which currently uses large volumes of grey hydrogen. Replacing this hydrogen produced from natural gas with green hydrogen contributes to the decarbonisation of the energy system. A second important use of the hydrogen will be in heavy duty transport, where due to the heavy weight of batteries the application of batteries for electric propulsion is limited.

Hollandse Kust (noord)

Shell and Eneco are participating in the tender for Hollandse Kust (noord) through their joint venture CrossWind. Both companies have a long and successful track record of developing, building and operating offshore wind farms. Together with the CrossWind consortium, they plan to have Hollandse Kust (noord) operational in 2023 with an estimated installed capacity of 759 MW, generating an estimated 3.3 TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity. The wind farm will be located approximately 18.5 kilometres off the Dutch coast near the town of Egmond aan Zee.

Together with the large-scale development of offshore wind projects comes the challenge of intermittency in wind generation. That is why CrossWind will invest in various innovations that can be implemented at full-scale in future wind farms to help balance the electricity network and keep societal costs low.

“With CrossWind, we want to work towards the realisation of the first offshore wind farm with innovations with regards to system integration,” said Kees-Jan Rameau, Chief Strategic Growth Officer at Eneco. “In addition to the energy the wind farm can generate, the park offers many opportunities to (further) develop innovative techniques that can be of added value in accelerating the energy transition. By combining the knowledge and expertise of Shell and Eneco, we can make full use of this potential. Moreover, this wind farm contributes to Eneco's ambition to help every household and company in the Netherlands to switch to a sustainable and clean energy supply.”

'The energy transition calls for guts, boldness, and action'

Marjan van Loon



Green hydrogen-hub

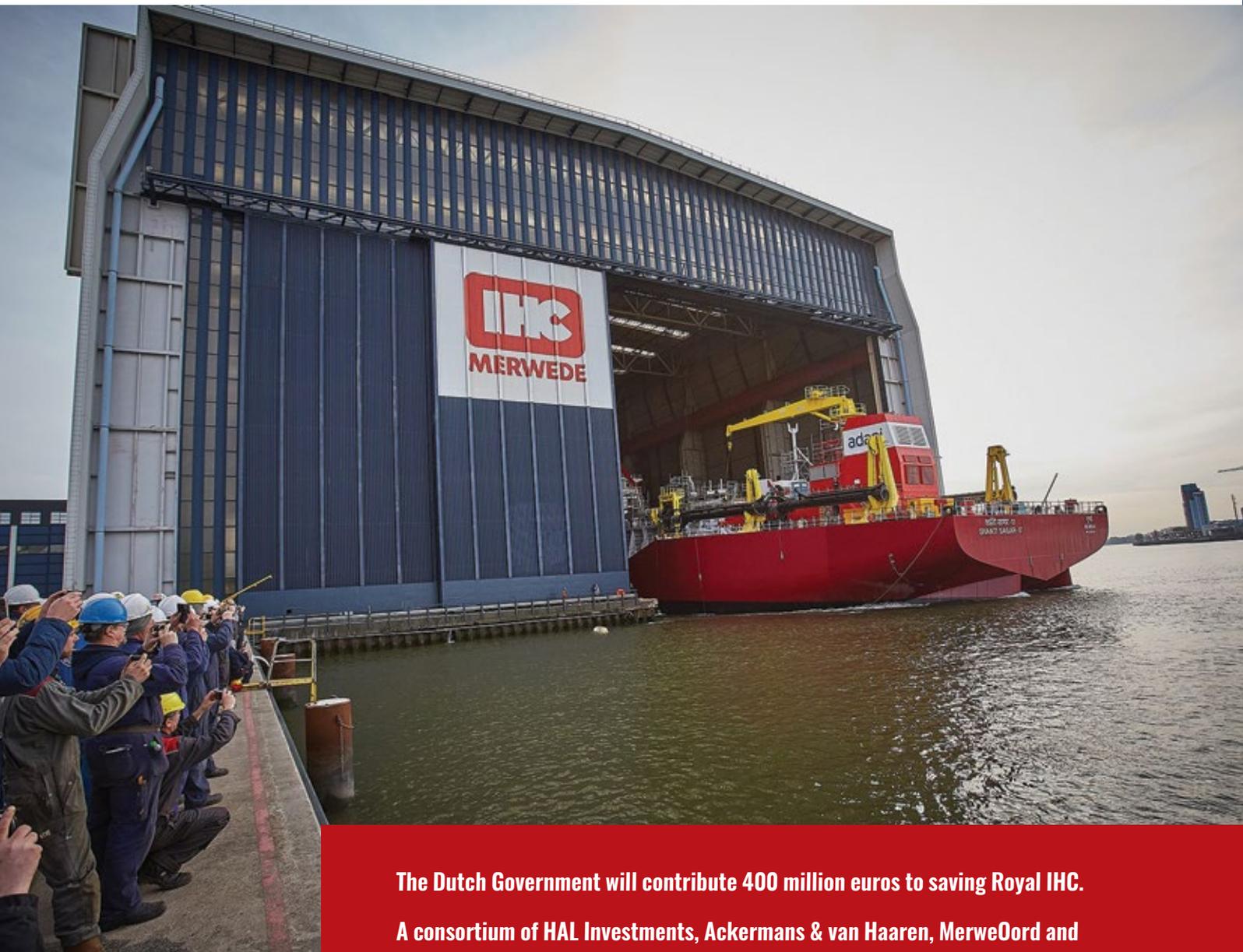
If the current plan will materialise, the hydrogen plant on the Tweede Maasvlakte will be built on a site especially designated by the Port of Rotterdam (2 GW conversion park) with Shell as the launching customer. In this plant, green hydrogen will be produced through electrolysis - a process in which water is split into hydrogen and oxygen using renewable electricity. The hydrogen plant will have a capacity of around 200 MW. The final investment decision for the hydrogen plant has not been taken yet.

Shell intends to start operations by 2023 to produce about 50,000 - 60,000 kg of hydrogen per day. The green hydrogen produced will initially be used at the Shell refinery in Pernis to partially decarbonise the production of fossil fuels. This saves a minimum of 200,000 tonnes of CO₂ per year. It is important that as of 2023 there is enough green hydrogen available, which can be used to decarbonise trucks in the transport sector directly. This way, approximately 2,300 hydrogen trucks per day could run on this volume of green hydrogen as the market for trucks on hydrogen further develops.

“The energy transition calls for guts, boldness, and action,” says Marjan van Loon, President-Director of Shell Nederland. “We are proud that together with our partner Eneco we are participating in the tender to build Hollandse Kust (noord). Through the connection of this wind farm to our possible future green hydrogen plant in the Port of Rotterdam, we want to develop a new value chain together with our partners and governments - from wind to hydrogen - to create a green hydrogen hub. We regard this as a stepping stone for the recently announced NorthH2-project. These projects fit well with our aspirations to provide more and cleaner energy to our customers, at home, on the go and at work.”

The green hydrogen plant that Shell wants to realise fits perfectly in the role that the port of Rotterdam envisions for itself to build a public hydrogen network in the port area. “Shell's announcement is now accelerating our plans for the construction of a hydrogen pipeline for the Rotterdam industry,” says Allard Castelein, CEO of the Port of Rotterdam Authority. “With projects like this, we are jointly building a sustainable port and industry. This is important for the future of the port and therefore for the earning power of the Netherlands.”

GOAL IS TO SAFEGUARD CRUCIAL SHIPBUILDING KNOWLEDGE



The Dutch Government will contribute 400 million euros to saving Royal IHC. A consortium of HAL Investments, Ackermans & van Haaren, MerweOord and Huisman are said to make a similar effort. Goal of the rescue operation is to safeguard crucial shipbuilding knowledge as well as employment.

Dutch Government and companies rescue shipbuilder Royal IHC

Minister of Economic Affairs and Climate Eric Wiebes and State Secretary for Finance Hans Vijlbrief have informed the House of Representatives of this in a letter on Thursday morning 30 April.

At the same time, Royal IHC announced a Heads of Agreement had been reached for the acquisition and refinancing of IHC Merwede Holding BV.

IHC's continued existence has been at stake recently. The main factors that played a role in this were accumulated debts and large losses on a number of large ships which are custom-built for customers.

In the letter, Wiebes and Vijlbrief say they felt they needed to intervene as 'IHC plays a strategic and innovative role in the maritime sector and failure to do so would undermine the robustness of the entire sector and have a major impact on the international competitive position of the maritime manufacturing industry. Secondly, a lot of jobs would be lost at a time when the government is doing everything in its power to keep the economy going and to minimise job losses.'

Terms and conditions

Additionally, the State itself is a major creditor of IHC, so trying to save IHC is also a way to minimise losses on outstanding amounts as much as possible. The 400 million euros the State will contribute consist of an early claim payment on the construction of ships of 167 million euros, guarantees of 30 million euros, a credit guarantee for 140 million euros in bank loans and a bridging loan of 40 million euros.

The state aid comes with several terms and conditions. Wiebes and Vijlbrief state: "First, the private parties involved in IHC should make an effort similar to that of the State. After debt restructuring, the company must be viable, as confirmed by external experts. Steps should also be taken to strengthen IHC's governance in order to avoid further large losses on

mega-projects in the future. Existing Board members and shareholders should not derive any further benefit from government intervention. Finally, the government considers it important that new financiers come on board to strengthen the balance sheet and increase support. All these conditions are currently met."

New CEO

IHC's Supervisory Board has appointed Gerben Eggink as new interim CEO. He succeeds Dave Vander Heyde, and will lead Royal IHC through this new phase. Eggink has extensive experience in successfully leading organisations in transition.

"It is great news that, with this Heads of Agreement, Royal IHC is retained as an innovative player for its customers and for the Netherlands," says Eggink. "I am looking forward to working hard with colleagues to restore the profitability of the business, while maintaining our high quality and the satisfaction of our customers for the solutions Royal IHC delivers. That will require a major effort from everyone, especially in these difficult times worldwide. But Royal IHC is more than worth it."

Paul van der Harten became CFO of Royal IHC with effect from April. Van der Harten has extensive international experience with large energy-related companies. He previously worked as CFO of AEG Power Solutions, and held various financial positions at OMV and Royal Dutch Shell.

According to Wiebes and Vijlbrief the continuity of IHC can only be assured if the vessels under construction are completed and delivered to IHC's customers. Only then can IHC look ahead again with a different business model. The level of losses, and with it the damage for export credit insurance, depends, among other things, on when the vessels can ultimately be delivered in relation to the contract and on the final sales price received by IHC.

**RENEWABLES ARE THE ONLY WINNERS IN
HISTORIC DECLINE IN ENERGY DEMAND**

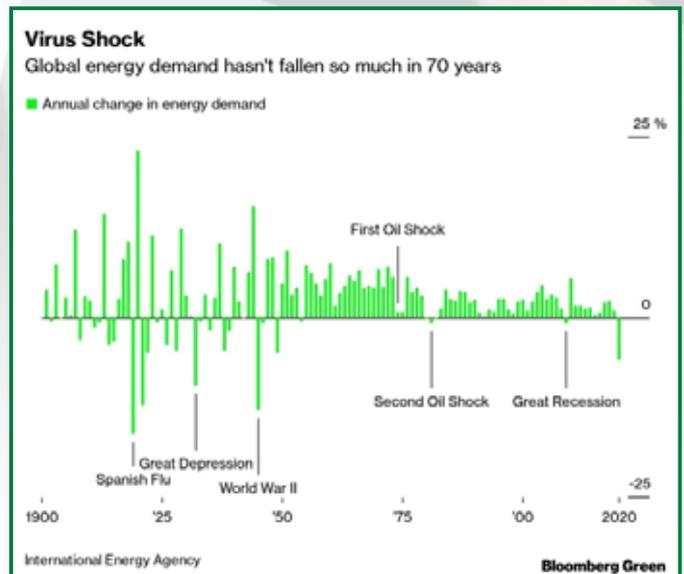
**Global emissions will fall
by 2.6 billion MT in 2020 -
largest fall in history**

The coronavirus lockdown will cause the biggest drop in energy demand in history, with only renewables managing to increase output through the crisis. As people around the world consume less oil, gas and coal, electricity generated from the wind and sun will keep flowing, resulting in an unprecedented 8% decline in global carbon dioxide emissions this year, according to a report from the International Energy Agency.

“The energy industry that emerges from this crisis will be significantly different from the one that came before,” Fatih Birol, the IEA’s executive director, said in a statement released from the organization’s headquarters in Paris in April this year.

The pandemic has infected at least 3 million people worldwide and killed more than 200,000 people as of April 29. With no drug to treat Covid-19 and a vaccine not expected until at least the end of the year, reducing the interactions between infected people is the only effective way to control the spread.

Those measures, however, have severe impact on economic growth and energy demand. Each month of lockdown on the scale of what’s in place



this month reduces annual energy demand by 1.5%, IEA estimates.

The institution that advises nations on energy policy says that demand is likely to fall 6% in 2020, which is seven times the scale of the drop suffered in the 2008 financial crisis. In absolute terms, it’s like losing the energy demand of India. Rich countries will show a steeper decline, with the U.S. falling 9% and the European Union losing 11%.

While all sources of energy - oil, coal, natural gas, and even nuclear - will see a decline, renewable energy is likely to be the bright spot. And though emissions will fall drastically, the IEA expects a sharp rebound without government policies pushing for a green recovery. Here are the key highlights from IEA’s report:

Oil glut

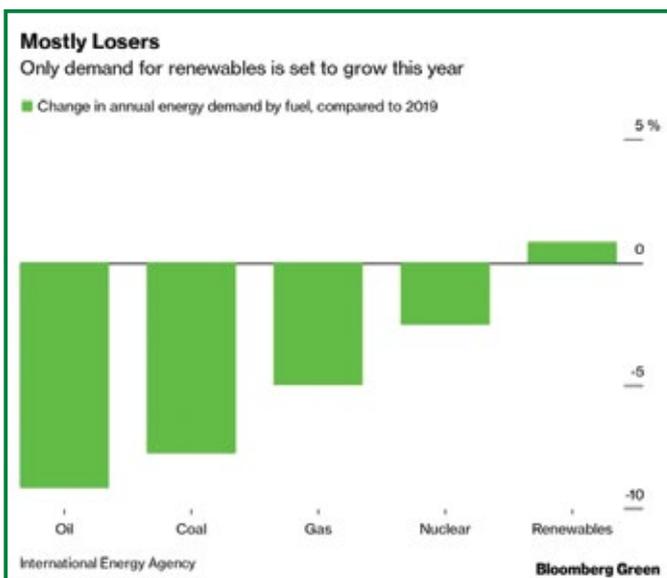
Global oil demand is poised to slump by 9 million barrels a day, or about 9%, to the lowest level since 2012. By the end of March, road transport activity was down about 50% around the world, while air travel in some European countries had plunged more than 90%. As lockdowns continue, April will see the deepest decline, with fuel consumption slumping almost a third to the lowest since 1995.

With demand in freefall, even prodigious efforts being undertaken by the OPEC cartel and its allies to stabilize markets won't be enough to shield the global oil industry from chaos, the agency warned. Some producing regions will suffer a 'disorderly production shutdown', it said.

Coal trend

Global coal demand is heading for its biggest fall since World War II - about 8% - as the case for burning the dirtiest fossil fuel is further undermined by the pandemic. The fuel's share in the electricity mix has fallen in India, China, Europe, and parts of the U.S. These four regions have large and varied electricity markets, and yet uniformly coal becomes the biggest victim when demand falls.

Burning coal for power in several European countries has become unprofitable and socially untenable - crowded out by cheap gas and the proliferation of renewable energy as well as powerful environmental movements. The pandemic has only served to hasten its demise.



Gas hit

Natural gas consumption was falling in the first quarter even before the Covid-19 pandemic hit Europe, mainly due to a mild winter in the northern hemisphere. The lockdowns accelerate that decline, with global demand expected to decrease by 5% this year - the first annual drop in consumption since 2009 and a huge shock to an industry that has grown accustomed to continued growth.

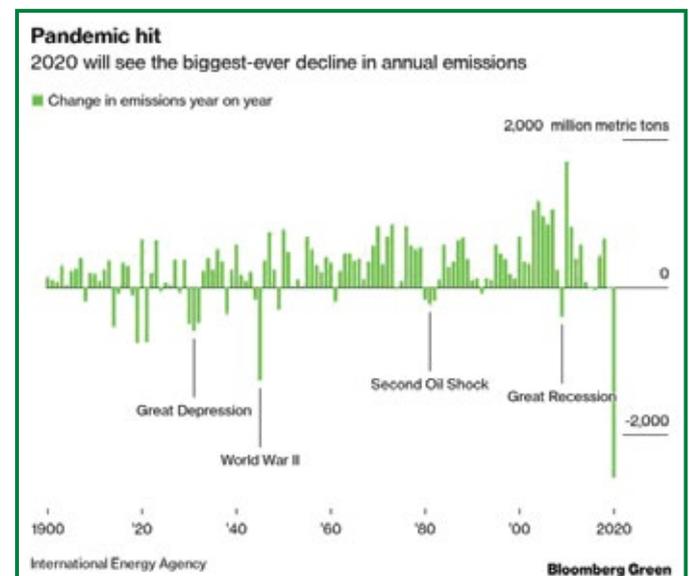
Much of this decline will come from power generation as the increasing shift toward renewable energy and low overall power demand is squeezing out the role of natural gas in production. Europe is expected to see a drop of 7%, whereas North America's decline is likely to be less severe, propped up by ultra-low prices.

Renewables brighten

Even as overall demand has decreased, renewables in many countries get first priority to feed electricity into the grid. That means producers of solar, wind and hydro power can sell all of the power they produce even as fossil-fuel generators turn down or shut off completely to prevent a system overload. Solar and wind farms have also benefited from windier and sunnier conditions than normal in some places.

In 2019, along with nuclear, low-carbon sources overtook coal for the first time ever. With the boost renewables get this year, the lead is set to extend, leaving low-carbon sources responsible for 40% of global electricity generation.

It hasn't been all positive for the sector. Like much of the global economy, the coronavirus has disrupted the supply chains for wind and solar farms. About 11% of the world's wind turbines were shut mid-April because of the virus, according to BloombergNEF. Work to build new wind farms has also been disrupted by restrictions on workers and regulatory processes being delayed. That could lead to a slowdown in new renewable energy projects coming online this year.



Emissions fall

With fossil-fuel use taking such a big hit, it's no surprise that emissions will fall. An 8% decline is larger than most early estimates, and bigger than what the most ambitious scenario to keep global warming under check demands. Yet, that decline probably is not enough to hold off further increases in the earth's temperature or the stock of greenhouse gases that have built up in the atmosphere, the IEA said.

The more ambitious target set under the Paris climate agreement - keeping temperature rise below 1.5 degrees Celsius - will require halving annual global emissions by 2030 and hitting net-zero emissions sometime around the middle of the century. Without deep structural changes, emissions are expected to rise again when economies recover.

"Governments can learn from that experience by putting clean energy technologies - renewables, efficiency, batteries, hydrogen and carbon capture - at the heart of their plans for economic recovery," Birol said. "Investing in those areas can create jobs, make economies more competitive and steer the world towards a more resilient and cleaner energy future."

WOMEN IN WIND Q&A: LI-MIEN LIN (TAIWAN)



‘We do not have sufficient women who hold engineering degree’

The Women in Wind Global Leadership Program sat down with Li-Mien Lin, one of this year’s Participants, to chat about her pathway to renewable energy and issues facing women in the wind sector. OER got permission to publish this article as well.

Li-Mien Lin is a strategic purchaser at MHI Vestas. Before joining MHI Vestas, Li-Mien has six years working experience in NPI sourcing, general procurement, supply chain management, business development and customer service with a combined Chinese, Taiwanese and German background of working experiences and cross-cultural environments.

How did you first become interested in renewable energy and joining the clean energy transition?

“I first became interested in renewable energy when I saw a documentary report on TV about the air pollution data in Taiwan and the increasing prevalence of lung cancer. Taiwan is generally the worst of all of the Four Asian Tigers, in particularly drawing attention to the annual mean PM 10 level of Taiwan (54 micrograms per cubic meter). A major contribution of PM 10 pollution comes from fossil fuels industry.”

“When the Taiwanese Government decided to enlarge the renewable energy ratio against other energy sources and to invest in wind industry, I was very excited about it. I think it’s a positive opportunity for Taiwan, not only to improve the health of our people but also to bring economic benefits.”

Tell us about your expertise and passion in the sector. How has this business area changed over the course of your career so far? For you, what is the next “space to watch” in renewable energy?

“The wind industry is a relatively new sector in Taiwan and we do not have all the know-how and trained people. By joining this industry during its development stage, I can not only gain lots of knowledge of the industry but also have a great career opportunity to build up for the future. For me, the next space to watch in Taiwan keeping an eye on policy updates and whether the government will adopt a long-term plan to build up our capacity and supply chain.”

What sort of challenges did you encounter in entering the sector?

“The first challenge I see in my procurement department is that most category managers are male, unlike my previous working experience.

I think the reason behind this is that most of them have industrial or technical backgrounds. However, I am glad that my mentor in our department is a senior woman and she helped me to integrate into the working environment and I could learn very fast to get my work started.”

If you had to pick one key issue facing women in the wind power sector, what would it be and why?

“I think the challenge of gender diversity in this industry is that since the Asia-Pacific market is still at the preliminary phase, we do not have sufficient women who hold the degree in this area of engineering training. Thus, during the hiring process, most applicants are men.”

Finally, what do you hope to achieve as a Participant in the Women in Wind Global Leadership Program? How will you contribute to the next generation of female leaders in the sector?

“I hope I can learn from other female leaders in the wind sector, and gain some insight how to facilitate the gender diversity in my work place. I believe that their experiences can provide me with ideas that will enable me to contribute to improve gender diversity in my organization, both in terms of decision-making and improving the practices of my team and wider department.”

Women in Wind

The Women in Wind Global Leadership Program constitutes a response to women's underrepresentation in the global wind energy industry. Set up jointly by the Global Wind Energy Council (GWEC) and the Global Women's Network for the Energy Transition (GWNET) in 2019, the Program aims at having inclusive conversations about gender as well as advancing the careers of women in the wind industry via skills sharing, knowledge-transfer and mentorship.

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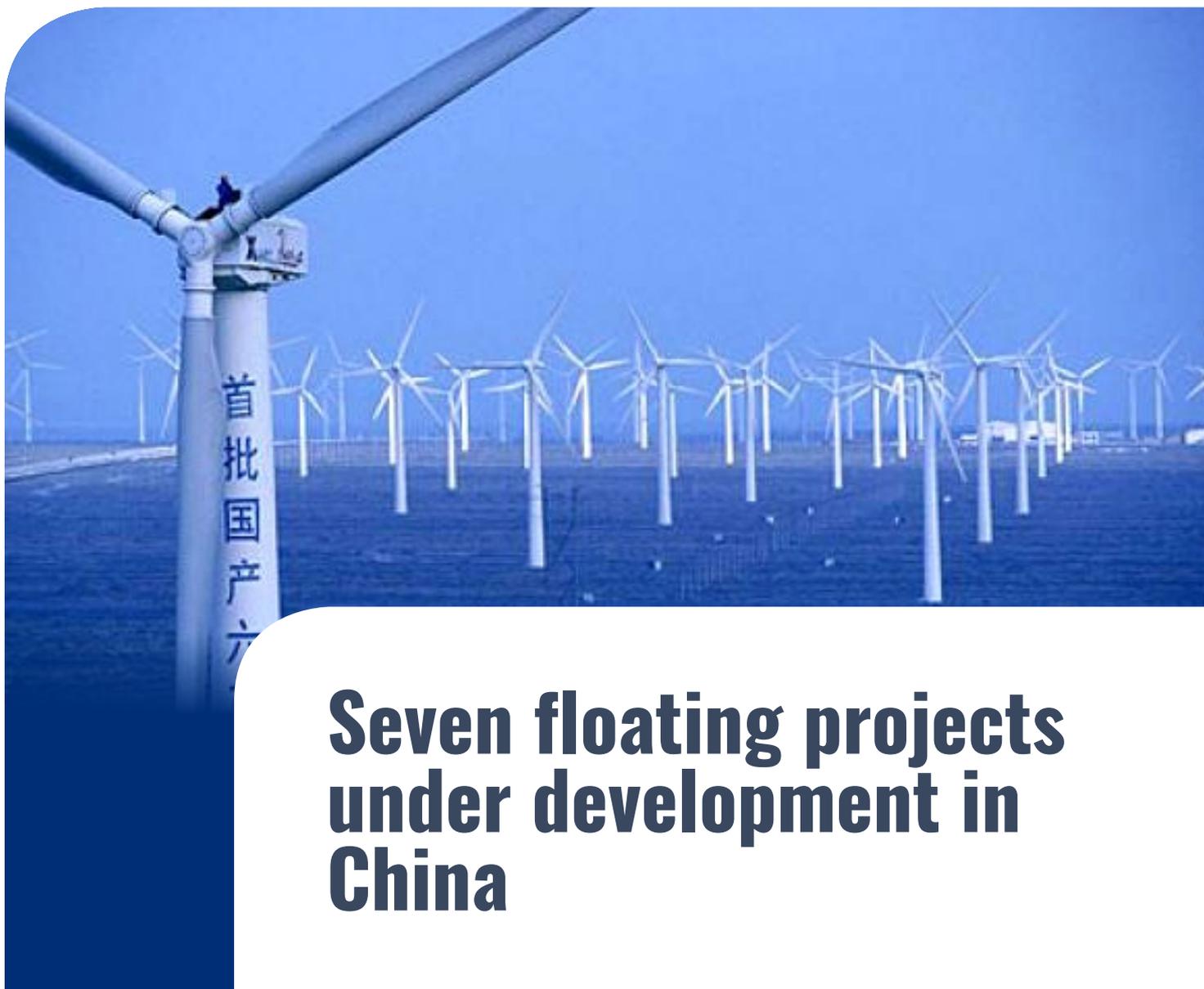
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Seven floating projects under development in China

CHINA'S FLOATING OFFSHORE WIND OUTLOOK

Floating offshore wind in China looked like a distant plan for the industry just two-three years ago. But today, in 2020, the scenario of a floating turbine installed in Chinese coastline has no longer far-fetch, as offshore wind has quickly become one of the most attractive energy business in the country.

Currently, there are seven floating projects under development in China. But the project development speed and the technical perspectives are profoundly different. Two projects are ahead and aiming to complete around 2021.

Besides the five projects, more tech companies have emerged and shown interests or progress in providing floating solutions. See below a breakdown of the company's strategy and regional market potentials in follow-up pieces.

Shanghai Deep & Far Sea Demonstration: 'The First'

The project is initiated by the Shanghai government - the municipal development and reform commission (DRC). Shanghai Science and Technology Committee (STCSM) has provided funding for the project R&D. In 2016, a ten party consortium was formed for the project.

The planned floating units are most likely to be installed in the eastern waters off Hengsha Island, Chongming district of Shanghai. In 2018, the SGEEC conducted initial site selection and zoned into five offshore areas as potential options.

The developer had been considering two development plans, which are of total 850MW capacity in three zones and of 2.8GW installation built in two offshore zones. Either way, the developer would strive to put up 2-5 pilot turbines at first.

The construction contractor, CCCC Third Harbor, has looked into TLP and Semi-Submersible as the floating solutions, but it concluded in 2018 to focus on TLP.

However, given a relatively shallow water depth of the site, at around 40 meters, the TLP solution also imposes a major challenge for the project development.

CTG/MYSE Yangjiang Pilot: Moving Ahead Fast

The local government of Guangdong province, the most ambitious region for offshore wind development, kicked off the project at 2018, with provincial funding allocated for the R&D.

Guangdong-based turbine manufacturer Ming Yang (or MYSE) says construction could start as early as 2021, but whether this is realistic remains to be seen.

The developer of the project is China Three Gorges (CTG), which will provide the deep water sites of it Yangxi Shapa Offshore Wind Complex for the demo.

It is worth to note that CTG has held a tender in May 2020 to solicit engineering and construction contractors to design, test, and install the floater.

CSIC Zhanjiang Pilot: Backed by National Funding

China Shipbuilding Industry Corp (CSIC), has entered into an agreement in 2018 with the local government of Zhanjiang to develop a floating pilot project in the southern province.

The Ministry of Industry and Information Technology's (MIIT's) in China has provided national funding for the floater research.

CSIC owns in-house capacity both in floating installation design and offshore turbine manufacturing. The firm's research powerhouse 702 Institute has completed an initial three-legged semi-submersible floater design. At the same time, the domestic top-5 turbine making affiliate CSIC Haizhuang is a leading party in the pilot project and will supply the floating 5.5MW turbine.

The firm has selected a site of 50-meters water depth in the water off Xuwen city, as the reserved spot for the pilot.

Nari Island Floating Offshore Sites: a 'Black Horse'

Formerly lesser-known, China Longyuan's Nanri Island floating pilot in Fujian province is moving ahead fast. It may kick off construction as early as 2021.

Nanri Island Offshore Wind Farm is a fixed-bottomed project developed by Longyuan since 2017. But it had previously reserved spots for floating turbines. The growing challenges in constructing fixed-bottom units in Fujian's offshore formation may have pushed the developer to speed up its floating agenda.

Recently, sources suggest a floating R&D has been taken off. The project has been taken part by engineer HydroChina Huadong Engineering Corp (Ecidi), shipbuilder CIMC Raffles, and turbine maker Shanghai Electric. Two conceptual integrated designs based on SGRE's 4MW turbine have been delivered, of which one combined floating foundation and marine aquafarming functions.

Tonex Demos in Fujian & Shandong: a 'Mystery'

A little known private turbine maker Tonex is leading two floating pilots in China, one at Fujian and the other off the coast of Shandong province. But the future perspectives of both projects remain mysteries. In 2020, the turbine maker unleashed an even more ambitious plan at Qingdao city, in a business set up identical to its Fujian venture, with Tonex leading the developments of both a turbine making facility and the offshore pilot project.

Two Pipeline Projects

Separately, there are two other floating wind plans revealed by local governments. But so far, neither has begun to take off serious development. Guangdong government has reserved a project in Shantou for a floating solution. And Shandong government has voiced support for a floating demonstration off Penglai, of Yantai city.



CHINESE TURBINE OEMS ACTIVE IN FLOATING DESIGNS

CSIC Haizhuang

Haizhuang, headquartered in Chongqing, is the turbine making affiliate of world's largest shipbuilder CSIC, which has been merged with China State Shipbuilding late last year to form a new CSSC group. The new conglomerate has a dominant position in China's marine engineering and shipbuilding market.

Backed by its stronger-than-ever mother firm, CSIC Haizhuang has been raising from a lesser-known player to a top-5 offshore wind OEM in the market in just about 2-3 years' time.

The group is also working with Elofi, now part of Shell, for the R&D.

Goldwind

As the dominant player of China's wind market for over a decade, Goldwind kicked off frontier research of floating turbine design back at 2013, backed by funding from Ministry of Science and Technology under the National '863' program, or the State High-Tech Development Plan. The OEM designed a semi-submersible platform based on its 6MW project and conducted a pool-side test. But back then, the offshore wind scene in China was still nascent. The research did not move forward to the next stage.

Ming Yang Smart Energy

The Guangdong-based Ming Yang has sailed through some very difficult times and 'bounced back' in the recent 2-3 years, thanks to Guangdong province's heated offshore wind market.

In 2018, the Guangdong government decided to support China Three Gorges (CTG), MYSE, and other local companies to develop a floating wind demonstration.

In May CTG released a tender for contractors to build a semi-submersible foundation for the pilot turbine. As the tender suggests, CTG aims to complete the floating installation by 2021.

Shanghai Electric Wind Company (SEW)

The leader in China's offshore wind market, Shanghai Electric Wind Group (SEW) has taken part in the 10-party consortium for Shanghai city's 'Deep and Far Sea Wind' demonstration project, in which SEW is the turbine designer and supplier.

Meanwhile, SEW also plays a role in a lesser-known potential floating wind project developed by China Longyuan its Nanri Island offshore wind farm, off Fujian coast. The fixed-bottomed wind farm has reserved sites for testing floating turbines.

The floating turbine is based on the SGRE-licensed 4MW turbine. The project allegedly sets to start in 2021.

Sinovel

A former champion and the first to test offshore wind waters, Sinovel has jointed Shanghai's floating demo as well - as another OEM in the project, next to SEW.

However, the Liaoning-based wind OEM has been battling with lawsuits and financial issues, recently removed from the China stock market mainboard. Given its business downfall, the firm's capacity in floating research is, at the moment, doubtful.

United Power

United Power has lost ground in the domestic wind market in recent year, despite now the affiliate of the world's largest power utilities China Energy Investment Corp. It has a limited share of the offshore wind market.

Recently the firm launched a tender to solicit research partner to carry out floating turbine design. The result of the effort remains to be seen, but certainly a positive step forward.

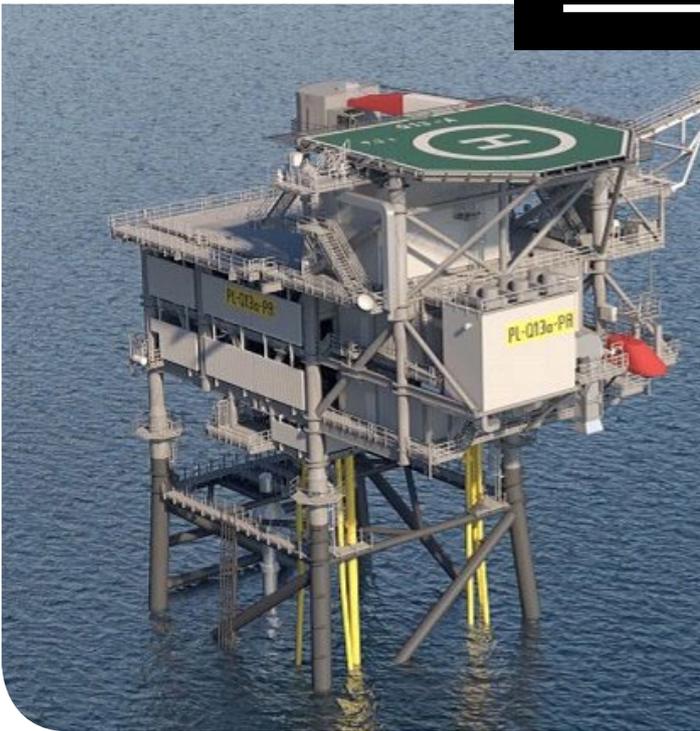
XEMC Wind

XEMC Wind has been one of the first to look into floating turbine design, also winning the '863' program funding in 2013 next to Goldwind. The firm then delivered a conceptual concrete semi-submersible design. However, there was no further effort to commercialize that research.

Once a world top-5 player, XEMC Wind's mother firm is facing some bitter financial issue and looking for a buyer of the wind manufacturing unit. The fate of its floating research is, therefore, very uncertain.

Original source: Yuki Yu, Energy Iceberg

POSHYDON OFFSHORE GREEN HYDROGEN PILOT



Neptune Energy welcomes DEME as partner

At the end of May Neptune Energy and DEME announced that DEME Offshore is joining the PosHYdon offshore hydrogen pilot as partner. DEME recently entered into partnerships through its subsidiary DEME Concessions for green hydrogen production in the ports of Ostend (Belgium) and Duqm (Oman).

PosHYdon integrates three energy systems in the North Sea: offshore wind, offshore gas and offshore hydrogen and takes place on Neptune Energy's Q13a platform. This production platform is the first fully electrified platform on the Dutch North Sea and is approximately 13 kilometres off the coast of Scheveningen.

Lex de Groot, Managing Director of Neptune Energy in the Netherlands, welcomes DEME. "It's great to see so many leading companies join PosHYdon. Integrating energy systems at sea is a new expertise. DEME's knowledge for connecting wind farms is crucial. Not only for this pilot, but also to gain experience in the follow-up processes after PosHYdon. The expertise DEME has built up worldwide helps us all to scale up from 1 MW to 100 MW or more after this pilot. This is a crucial step that paves the way for the further development of offshore wind energy and the conversion to hydrogen in the North Sea. This will be particularly interesting for wind farms far away from the coast that will be built after 2030. Especially now that electricity prices are so low, which can slow down the development of offshore wind farms needed to meet climate targets. In addition, the fluctuations of wind at sea can be mitigated by converting this energy at sea into hydrogen."

Bart De Poorter, General Manager DEME Offshore: "DEME has an ongoing focus on new markets and developing opportunities. Together with DEME Concessions, we consider the system integration, green hydrogen production and electrification of existing platforms at sea a very interesting market. PosHYdon is a starting point. DEME is involved in the conceptual design of a 100 MW offshore hydrogen gas production plant. We are also the Task Leader when evaluating the business case in line with this 100 MW concept. We will also be involved in the transport to and installation of the onshore H2- unit on the Q13a platform. We are very pleased to be able to join the strong partners within the consortium and the collaboration with Neptune Energy, one of the pioneers in this market."

DUPONT SUSTAINABLE SOLUTIONS (DSS)



Risk Awareness Training for Siemens Gamesa

DuPont Sustainable Solutions (DSS) has begun working with Siemens Gamesa's Offshore business unit on training the organization of approximately 6,000 employees in developing greater risk awareness to improve safety.



Having worked with DSS previously within their Onshore business unit, the company chose to work with DSS due to the strong competency and reputation in risk and safety management. The two companies have partnered to implement DuPont Risk Factor training across the organization, as well as group leadership coaching for the senior and middle management staff, and a number of Safety in Engineering Design workshops. As the work was designed to be delivered remotely leveraging digital technologies, the project is currently ongoing with no interruptions because of Covid-19.

Siemens Gamesa is the global market leader in offshore wind power industry, with employees and installations in all main and developing markets. The company's activities encompass all aspects of the value chain, including innovation, development, manufacturing, installation, and service, to name a few. In both manufacturing, installation, and operation & maintenance, many of the employees work in small groups or on their own, strengthening awareness of risks critical to their safety.

The Siemens Gamesa LeadSafe project, as the activities are collectively known, kicked off with a pilot project at the end of 2019 after an initial assessment of the organization's safety culture by DSS to customize training.

The project involves most of the staff working at the company's manufacturing sites, offices, pre-assembly locations and installation personnel, and will also encompass bespoke workshops for 200 engineers aimed at improving safety in the engineering process.

Given the importance of protecting its people, Siemens Gamesa has decided to continue implementation of the project during the COVID-19 pandemic, with much of the work being delivered virtually.

Additionally, markets in more advanced stages of economic recovery have been prioritized, such as China.



SHUGEN TSAI OF YEONG GUAN AND NIELS STEENBERG OF SGRE:



‘Globalization is key to successful local content policy’

Yeong Guan has a plan for expanding the market worldwide from a very early age. Yeong Guan has been a qualified supplier of important parts in Siemens thermal power generation projects, and then successfully became a qualified supplier of important parts in Siemens wind power sector ever since, before the development of offshore wind in Taiwan.

"Our business logic is different from SGRE's logic, one can deeply appreciate the 'growing together' corporate culture, based on the working experience with Siemens Gamesa. Taiwan government can't release 5GW every year just to build the offshore wind farm. I mean, in Taiwan's local market, factory operations without the ability to globalize cannot survive," said Vice president Shugen Tsai.

"The language barrier is not an issue, because we speak the same language: mechanical language," Tsai added. "The most impressive thing about working with Siemens Gamesa is that they don't simply ask suppliers to cover all of the risks: they work with suppliers to prevent and block risks, together, which is a completely different kind of operational thinking compared to the way of thinking in Taiwan."

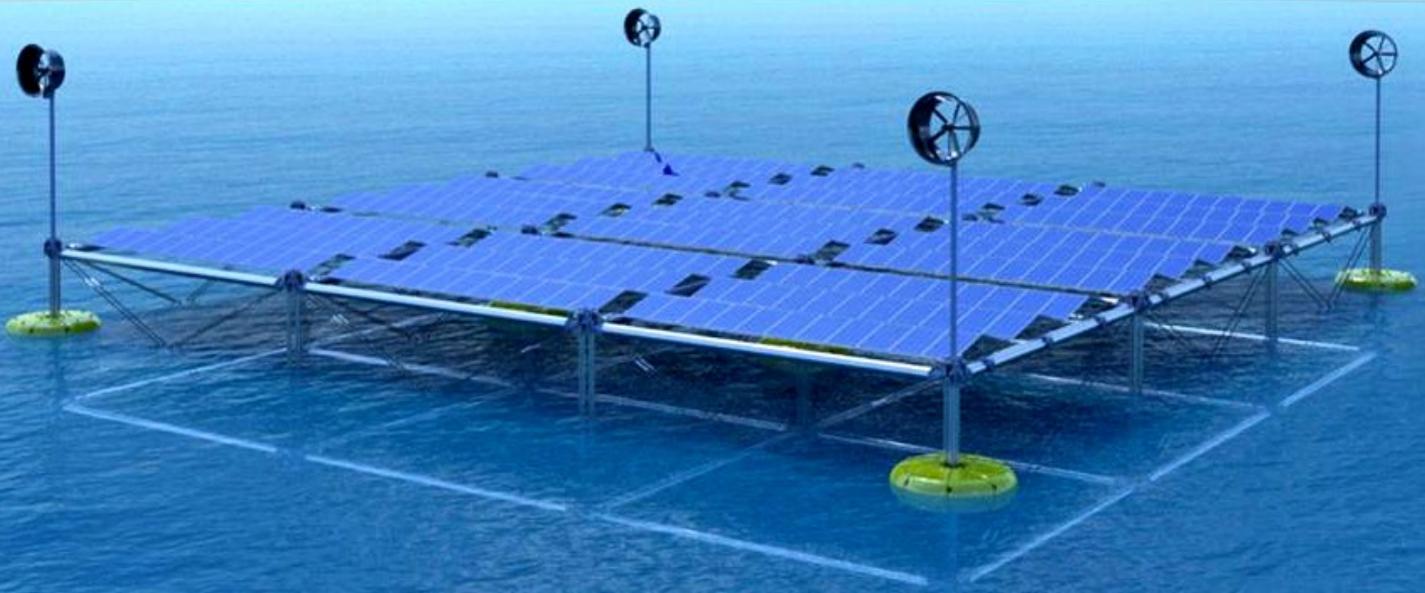
It means that Taiwan's manufacturers should reverse the mindset of the traditional contract model (investment plant with orders), and then think about their strategy into the global market.

"The development of the industry should not be localized. The problem with localization is that in the end, there will be only local suppliers left in Taiwan. We are a wind turbine system vendor, our industrial curve seems to go up and down, and our orders come from offshore wind projects. We can't simply hire a group of people based on orders, and then dismissal of employees because of the completion of the project.

It doesn't work like that. The very first thing that comes to our mind is how to expand our markets worldwide, sell our products all over the world to separate the operational risks. Offshore wind power is a highly globalized industry. While talking about the local content surveying and checking, the reviewing points may focus on products and services with the potential for supplying worldwide," SGRE General Manager Niels Steenberg pointed out.

In the middle SGRE General Manager Niels Steenberg.
Right: Vice president Shugen Tsai of Yeong Guan.

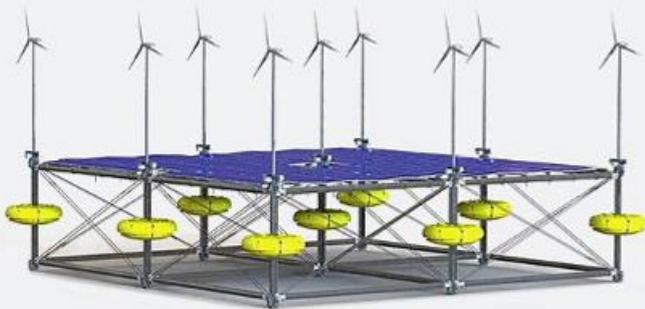
FIRST FLOATING OCEAN HYBRID PLATFORM



Generating power from waves, wind and solar

Concept of the full ocean hybrid platform, offering wave, solar and wind energy conversion (SINN).

German startup Sinn Power has developed a modular maritime platform able to generate renewable energy from waves, wind and solar sources. Starting later this summer, it hopes to offer solar panel manufacturers the chance to test and demonstrate photovoltaic arrays on a floating platform off the Greek coast as part of an off-grid energy solution.



Clockwise from top left: basic wave energy conversion (WEC) then with solar and wind (SINN).

Offshore wave energy conversion (WEC) is nothing new; pioneering new developments are taking place in this field all the time. However, what makes this particular platform unique is that it's been designed to be modular and extremely easy to connect and expand, so a variety of different combinations are possible.

"The modular design has been a key element since we started developing maritime technologies that allow flexibility and a wide variety of applications," Dr Philipp Sinn, CEO Sinn Power says. "The floating platform can supply renewable energy to islands across the world, for example, and contribute to the worldwide implementation of offshore wind farms."

IP68-rated electrical sensors continuously transmit data to diagnostic centers, enabling the early detection of anomalies and preventing potential failures. By analyzing power output patterns, they can easily optimize a service plan for potential customers and anticipate repairs before serious damage occurs. The key is making this technology affordable.

Each floating unit, or module, consists of four integrated wave energy converters generating power relative to the water conditions. For regions with low potential for wave energy, the unit can also be equipped with an array of 20kW photovoltaic cells. Similarly, up to four small 6 kWp wind turbines can be equipped and finally a combination of all three is also possible, making optimum use of the environmental conditions surround the platform. There is no limit to how many units a potential could have.

"It's always the same, it's super modular. We can always use the same parts, the same electronics regardless of which configuration is constructed.

So, with this strategy, we want to get into volume, get the practice low, and then it's so we can show that wave power is really attractive against solar," Sinn tells.

'The modular design has been a key element since we started developing maritime technologies that allow flexibility and a wide variety of applications.'

Dr Philipp Sinn, CEO Sinn Power

Based near Munich and with a permanent testing facility in Heraklion, on the island of Crete, the idea has attracted a lot of attention, from partners and investors. Impressive as it only took two years to go from patent to prototype.

"We are now preparing the floating platform to be used as a showcase, to enable wider access for potential customers. Politicians and representatives from other European nations have already visited. The next goal is in the autumn, when hopefully we'll be able to start marketing our unique electronics set," Sinn concludes.

Contributor Scott Snowden

NORTHERN LIGHTS PARTNERSHIP



Equinor, Shell and Total have decided to invest in the Northern Lights project in Norway's first exploitation licence for CO₂ storage on the Norwegian Continental Shelf. Plans for development and operation have been handed over to the Ministry of Petroleum and Energy.

The Northern Lights partnership of Equinor, Shell and Total have announced their joint decision to invest in the Northern Lights CCS project. The investment decision is subject to final investment decision by Norwegian authorities and approval from the EFTA Surveillance Authority (ESA).

"The Northern Lights project could become the first step to develop a value chain for Carbon Capture and Storage (CCS), which is vital to reach the global climate goals of the Paris Agreement. Development of CCS projects will also represent new activities and industrial opportunities for Norwegian and European industries," says Anders Opedal, executive vice president for Technology, Projects & Drilling at Equinor.

"This unique project opens for decarbonisation of industries with limited opportunities for CO₂-reductions. It can be the first CO₂ storage for Norwegian and European industries and can support goals to reduce net greenhouse gas emissions to zero by 2050," says Opedal. The investment decision concludes the study phase during which the

Historic investment decision for transport and storage of CO₂

Equinor, Shell and Total worked closely with Norwegian authorities to conduct engineering studies and project planning, drill a confirmation well and develop the necessary agreements. Following the investment decision, the partners intend to establish a joint venture company.

The initial investments will total almost NOK 6.9 billion. The project will generate much needed jobs for Norwegian industry, with an estimated 57 percent of the investment going to Norwegian contractors.

“CCS is a crucial technology to help society and economies thrive through the energy transition. Shell is active in all parts of the CCS value chain and Northern Lights further strengthens our global CCS portfolio. We appreciate the leadership shown by the Norwegian Government to accelerate the development of CCS value chains and believe that the Northern Lights CO₂ transport and storage solution has the potential to unlock investment in capture projects across Europe,” says Syrie Crouch, vice president for CCUS in Shell.

“Total is proud to be part of this first commercial-scale carbon transportation & storage project in Europe. Together with our industrial partners, under the leadership of Norway, we’ve managed to conclude successfully the technical studies and we have achieved an important step towards the realization of the project. Today, more than ever, we are willing to maintain our efforts on the development of the CCS technology which is needed to reach the EU carbon neutrality goals and is fully part of Total’s new Climate Ambition to get to Net Zero by 2050,” says Philippe Sauquet, president Gas Renewables & Power at Total.

The project will be developed in phases. Phase 1 includes capacity to transport, inject and store up to 1.5 million tonnes of CO₂ per year. Once the CO₂ is captured onshore by industrial CO₂-emitters, Northern lights will be responsible for transport by ships, injection and permanent storage some 2,500 metres below the seabed. The CO₂ receiving terminal will be located at the premises of

Naturgassparken industrial area in the municipality of Øygarden in Western Norway. The plant will be remotely operated from Equinor’s facilities at the Sture terminal in Øygarden and the subsea facilities from Oseberg A platform in the North Sea.

The facility will allow for further phases to expand capacity. Investments in subsequent phases will be triggered by market demand from large CO₂ emitters across Europe.

Equinor, on behalf of the partners, has already signed non-binding Memoranda of understanding with several European companies for the development of value chains in carbon capture and storage. Binding commercial agreements will depend on positive investment decision from Norwegian authorities and for individual third-party projects. This cross-industry collaboration is a unique solution and enables handling of large CO₂ volumes that would otherwise have been emitted. This new value chain and infrastructure for carbon capture and storage projects can only be developed with cooperation between governments and companies.

If the project receives a positive final investment decision from the Norwegian Government in 2020, Phase 1 is expected to be operational in 2024.



Successful completion installation of Borssele 1&2 foundations

ØRSTED AND DEME OFFSHORE





Wind farm developer Ørsted and DEME Offshore have successfully completed the installation of the 94 Borssele 1&2 foundations. The installation started in January this year. Despite COVID-19, the installation was completed on time. The foundations were installed by DEME's installation vessel 'Innovation'.

Jan Wind, Project Manager foundations for Borssele 1&2: "The process of designing, manufacturing and installing the foundations went very well and the milestone has been achieved in cooperation with our suppliers. We did this as one team. I thank everyone who contributed to this safe and smooth process."

Jan-Mark Van Mastwijk, Business Unit Director Renewables at DEME Offshore said: "It is a pleasure to work for Ørsted, which is a company driven by the same passion for technical optimisation and pioneering technology. Despite the challenges related to COVID-19, we achieved an excellent performance with our installation vessel 'Innovation', installing all 94 foundations in just five months. We also worked closely together to keep improving the safety processes and performance, learning from each other's strengths and maintaining an open dialogue. We will continue to work on the turbine installation in the same spirit."

Klaasjaap Buijs, Construction Manager for Borssele 1&2: "Even with our strict COVID-19 measures we are well on track with the construction of the wind farm. In the last few weeks we even had three jack-up vessels, two cable installation and burial vessels, two SOVs, one supply vessel and 11 CTVs on site. I've never seen such a busy site. We have already installed 74 of the 94 cables and 20 of the 94 turbines. The wind farm will be completed by the end of this year and will then supply green energy for one million households."

**VESSEL CONSORTIUM IS KEY TO
US OFFSHORE WIND MARKET**

**Using European
vessels is only current
solution right now**

At some point, the discussion about the construction of a dedicated vessel for building offshore wind farms in the US will have to move from aspiration to actuality.

Currently, no specialized vessels for offshore wind construction exist in the US, but final investment decisions will eventually be made for large US wind plants. However, a buildout of multiple large US wind plants cannot be done in a cost-effective way by using European vessels, which is the only current solution.

That point of actuality is drawing near with a company well-positioned to deliver on the aspiration. Dominion Energy confirmed in a May 5 conference call that it was part of a consortium formed to build a US-flagged offshore wind construction vessel. This vessel will work on Dominion's 2.6 GW offshore wind farm off the Virginia coast and on other large projects in the near-term pipeline.

Dominion

Dominion plans to build its 2.6 GW project in three 880 MW phases, completing one phase each year from 2024 to 2026. The wind farm will connect into PJM's wholesale power market, and its cost will be borne by Dominion's ratepayers. Dominion is showing signs that it is on track with small vessels currently conducting geophysical, biological, and oceanographic surveys. Dominion also signed a preferred supplier agreement in January 2020 with Siemens Gamesa for the wind turbines. Dominion recently confirmed that the project will use the company's latest 14 MW turbine.

A photograph of an offshore wind turbine in the ocean. The turbine is white with a yellow base. The sky is blue with some clouds. The water is dark blue with whitecaps. The turbine is the central focus of the image.

‘Jones Act makes it illegal for vessels not built in US to deliver goods and conduct work from port to port.’

Photo: Val Stori, Clean Energy Group.

Dilemma

The construction and commissioning of a US-flagged vessel has been critical to the offshore wind market. But this process has been mired in a dilemma. Offshore wind developers face higher costs if they have to contract work from a European vessel, but investors interested in building a US vessel are not going to build without being certain the vessel is used at full capacity for the years needed to recoup the investment. A vessel will likely need 500 MW to 800 MW of annual capacity installation for at least 5 years.

The obvious answer is that the two efforts must proceed concurrently with solid contractual obligations to protect all investors and stakeholders involved. That is what Dominion and this consortium are attempting. The other stakeholders have not yet been identified, but they include offshore wind developers active in the US market. These other developers should contract their development and construction activities with this consortium-built vessel so they can avoid the higher cost and complexity of using European vessels.

The Jones Act

A further challenge is a maritime law from the 1930s called the Jones Act. The law makes it illegal for vessels that are not built in the US to deliver goods and conduct work from port to port. One US offshore project commissioned in 2016, Deepwater Wind's 30 MW Block Island wind farm off the Rhode Island coast, illustrates this challenge. The developers had to contract a jack-up vessel from Europe due to the lack of US vessels, but the vessel could not touch US shores where it would normally pick up the wind turbines, towers, and blades. Instead, Deepwater had to use smaller US-flagged barges that towed wind turbine equipment out to the site, where it was transferred to the European jack-up vessel, increasing the cost and complexity of the project. A dedicated US-flagged vessel will be more efficient and cost-effective by loading all components at a US port on one vessel. Eventually, more dedicated vessels will be essential for the future success of the US offshore wind market.

Source: Navigant Research - Jesse Broehl

Wasserstoffstr

GERMANY'S HYDROGEN STRATEGY:
GREATEST INNOVATION SINCE EEG



Germany plans to promote 'green' hydrogen with €7 billion

Of the €130 billion promised in the economic stimulus package, €7 billion are now to be spent to promote hydrogen to make it market-ready and create a demand-driven market (EPA-EFE/CHRISTIAN MARQUARDT / POOL [Christian Marquardt/epa]).

On June 10, the German government adopted its national hydrogen strategy with plans to ramp up production capacity to 5 GW by 2030 and 10 GW by 2040. To achieve this, €7 billion will be invested in new businesses and research.

When he presented Germany's hydrogen strategy in Berlin economy minister Peter Altmaier (CDU) called the 28-page document the 'greatest innovation since the EEG', a reference to the landmark German renewable energy sources act which came into force in 2000. With this 'quantum leap', Germany wants to become the world leader in hydrogen technologies, added Altmaier, who was speaking alongside three other ministers.

This is the first time that Germany has set itself quantitative targets for the production of hydrogen. By 2030, Germany aims to have generators with a total capacity of up to 5 GW, which corresponds to hydrogen generation of about 14TWh. By 2040, capacity should be increased to 10 GW.

Powered by offshore wind

Most of the energy required will be provided by offshore wind farms, while the 14 TWh would require about 20 TWh of green electricity.

The Social Democrats (SPD) had demanded twice that amount. However, when the federal government presented its economic stimulus package last week, the cabinet quickly reached an agreement.

Of the €130 billion promised in the economic stimulus package, €7 billion will now be spent to create a demand-driven market for hydrogen produced at competitive costs.

So far, the production of hydrogen from renewable energies has only been possible in small quantities in so-called 'real laboratories' that determine how electrolysis can be scaled up.

In addition, the German government is providing €2 billion for international partnerships, for example with North Africa, where it has already concluded several agreements to participate in production facilities there. And a 25-member national hydrogen council consisting of industry, science and civil society representatives will provide regular advice to the government. The hydrogen strategy is accompanied by an action plan containing 38 measures. They include creating better conditions for renewable energies and more attractive conditions for the construction of offshore wind farms.

'Whoever says yes to hydrogen must also say yes to wind energy.'

Svenja Schulze,

Environment Minister (SPD).

'Green hydrogen technologies should soon bear the 'Made in Germany' seal.'

Anja Karliczek, Research Minister (CDU).

"Whoever says yes to hydrogen must also say yes to wind energy. That is why we must and will consistently expand renewable energies," Environment Minister Svenja Schulze (SPD) stressed during the meeting.

Demand quotas in aviation

Hydrogen will be used first where processes cannot be electrified - for example, in heavy goods transport, steel production, the chemical industry and aviation.

Companies in these sectors will receive financial aid if they invest in electrolysis plants to transform their production processes. To this end, a pilot programme for so-called Carbon Contracts for Difference (CfD) will be launched, which is aimed at the steel and chemical industries.

Hydrogen will also be used in the transport sector, an idea that was originally rejected by the environment ministry. And to support the production of renewable energies, infrastructure for hydrogen refuelling, among other things, will be established.

In addition, the German government wants to examine whether a 20% quota for renewable energies in aviation can be implemented by 2030.

For Oliver Krischer, deputy chairman of the Green Party, this point is essential: "Large production capacities are to be built up without it being clear who will buy this hydrogen in the first place." Mandatory blending quotas are needed, for example in air traffic or in the natural gas network.

However, according to him, hydrogen is misplaced in the automotive sector. "The planned money for hydrogen filling stations is wasted money, because electric cars are much cheaper and their efficiency cannot be matched," he said.

Subsidies for green hydrogen

The debate over how much 'green' hydrogen produced from renewable energies should be promoted in Germany was particularly controversial. 99% of hydrogen today comes from fossil fuels and the oil and gas industry argues that the 'grey' sort produced from natural gas should also play a role, at least in the initial stages, in order to ramp up production.

In the end, a compromise solution was found: Although the German government strongly promotes green hydrogen, it does not exclude the 'grey' sort. "We will of course experience transitional steps when we replace grey with green hydrogen," Altmaier said.

The strategy also anticipates a Europe-wide hydrogen market to develop in the next ten years, where 'blue' and 'turquoise' hydrogen will also be traded. Both 'blue' and 'turquoise' hydrogen are produced from natural gas. But while 'blue' hydrogen uses carbon capture and storage to bury CO₂ emissions underground, 'turquoise' uses pyrolysis to separate hydrogen from natural gas, leaving solid carbon as a by-product instead of CO₂.

Since Germany is integrated into the EU's energy networks, CO₂-neutral hydrogen will also play a role in Germany and, if available, will also be used on a provisional basis.

Strong focus on green hydrogen

Germany has declared the creation of a European hydrogen infrastructure as one of the greatest priorities of its upcoming EU Council Presidency, in the hope of establishing itself as an export champion in the coming years.

"Green hydrogen technologies should soon bear the 'Made in Germany' seal," said Research Minister Anja Karliczek (CDU).

Representatives of the business community and civil society have largely welcomed the strategy and praised the strong focus on green hydrogen. At the same time, the long negotiations within the government highlighted the difficulties in transitioning away from fossil-based hydrogen.

"The German hydrogen strategy shows that one of the world's largest fossil gas consumers is preparing for a future without it," wrote Felix Heilmann, a researcher at the climate think tank E3G, who added that electrification and energy efficiency must be pushed forward simultaneously.

Original article: Florence Schulz | EURACTIV.de | translated by Daniel Eck

Waterstof is niet een wetenschappelijke droom

Waterstof gaat ons helpen om in 2050 een CO₂-neutraal energie- en grondstoffsysteem te hebben. En daar wordt in Nederland hard aan gewerkt. Het Topconsortium voor Kennis en Innovatie (TKI) Nieuw Gas van de Topsector Energie bundelde de actuele Nederlandse waterstofprojecten in een overzicht.

TKI Nieuw Gas directeur Jörg Gigler: “Waterstof is niet een wetenschappelijke droom voor de toekomst, het gebeurt nu. Deze projecten geven invulling aan een gedegen plan voor waterstof in Nederland, met samenwerking over de grenzen heen en een positie in de internationale koplopersgroep. We bouwen de grootste waterstoffabriek van Europa, werken aan de eerste waterstofvrachtwagens en onderzoeken een windmolen die direct waterstof maakt. Nederland mag zich hier internationaal gezien echt heel trots op voelen.”

Een aantal projecten, zoals Hystock (opslag van waterstof in een gasberging) en Fuel Cell Electric Buses (bussen op waterstof), levert nu al concrete resultaten op. Jörg Gigler wordt enthousiast van projecten die op korte termijn resultaten opleveren: “Over 2040 durf ik ook van alles te roepen. Wat moeilijker is, is om lef te tonen en over een jaar een faciliteit van 20 MegaWatt bouwen. Dan hebben we daadwerkelijk wat in handen.

Ik vergelijk het met de eerste stapjes van een hinkstapsprong. De ‘hink’ zijn de projecten die op korte termijn concrete resultaten opleveren. Daarna volgt de ‘stap’ naar 10 tot 20 MegaWatt en vervolgens de sprong naar 100-200 MegaWatt. Hieraan wordt ook hard gewerkt in Nederland, maar dat duurt nog iets langer. Het hele grote vergezicht is het GigaWatt-verhaal waarbij grootschalige opwekking van duurzame elektriciteit en de koppeling met waterstofproductie wordt gerealiseerd.”

Integrale gedachte

De waterstofprojecten in het overzicht beslaan de hele waterstofketen. Ze kijken naar productie op verschillende manieren en naar transport en opslag. En de projecten verdiepen zich in toepassing op verschillende terreinen: in de industrie, mobiliteit en gebouwde omgeving. Het overzicht van TKI Nieuw Gas laat duidelijk zien dat er in Nederland wordt gewerkt aan de hele integrale gedachte achter waterstof. Mooi is dat er heel veel bedrijven en kennisinstellingen bij betrokken zijn.

“Maar,” zegt Gigler, “zij kunnen dat niet alleen. Er is ook veel support van de overheid voor nodig en gelukkig is die er ook.”

Wereldformaat

Gigler is trots op de lijst van projecten. “We doen in Nederland waterstofprojecten van wereldformaat. Dat kunnen we, omdat Nederland een unieke positie heeft. We hebben een perfecte infrastructuur met havens, kennis, logistiek, aardgas- en waterstofnetten. We hebben havens in Amsterdam en Rotterdam die eventuele importkanalen kunnen ontsluiten. We hebben een enorm offshore-potentieel voor windenergie. Nederland is van oudsher een handelsnatie en kan dat toepassen op waterstof. Tel al die eigenschappen bij elkaar op en de conclusie is dat Nederland een logisch scharnierpunt is voor waterstof, zeker in Noordwest-Europa. En misschien nog wel belangrijker: we praten niet alleen over de potentie van waterstof, we werken er ook concreet aan.”

**MODVION COULD BECOME THE
IKEA OF TURBINE TOWERS**



Modvion's first wooden wind turbine tower being installed in Sweden.

Wooden turbine towers promise to push wind industry to greater heights

A new design for wind turbine towers could see them made from wood rather than steel, soaring to ever-greater heights and producing more power, if a new trial proves successful.



'Wood has fantastic properties and we need to build much more in wood.'

Johan Åhlén, CEO of Moelven Töreboda.

Inside a Modvion tower.

Modvion, a Swedish design and engineering company, could become the Ikea of turbine towers if its modular, laminated wood design proves successful. The company has erected a 30 meter tower at a site just outside Gothenburg, Sweden for research purposes but it says that as early as 2022, the first wooden towers will be built on a commercial scale.

The company claims that the wood structure is as strong as steel but carbon-neutral from the outset. Steel is one of the most carbon-intensive materials in the world because it requires heavily polluting coal as part of the production process, not just to provide the heat to run the smelters. Although there are moves to develop more climate-friendly steel plants using hydrogen and carbon capture and storage technology, none is close to commercialisation.

By contrast, wood towers have a drastically lower carbon footprint because they trees they are made from absorb CO₂ as they grow. The wood is also lighter, and because it comes in stackable sections, it is easier, cheaper and more efficient to transport.

This advantage is enhanced by the fact that the towers are modular, so there is no need to transport structures hundreds of meters long on public roads – the pieces can be put together on site. The company says that because wooden towers are lighter and modular, it will be possible to build taller towers. If the height of the tower increases from 80 meters to 140 meters, a turbine can produce triple the amount of energy, according to the US Department of Energy.

As wind towers rise above 100 meters in height, transportation poses considerable problems because the base diameters for 100+ meter towers are wider than 4.3 meters, the limit for transport width in most parts of the USA and the EU.

Additionally, the company says, conventional steel tower constructions get dramatically more expensive with height due to the increasing need for thicker walls. In order to make significant returns on wind technology investments, organizations will need to drastically improve both costs and efficiency.

"This is a major breakthrough that paves the way for the next generation of wind turbines. Laminated wood is stronger than steel at the same weight and by building in modules, the wind turbines can be taller. By building in wood, we also reduce carbon dioxide emissions in manufacturing and instead store carbon dioxide in the design," tells Otto Lundman, CEO of Modvion.

"Wood has fantastic properties and we need to build much more in wood if we are to meet the climate goals. For us, it is hugely inspiring to participate in this pilot project where we have been able to use renewable wood in a design for the production of renewable energy," says Johan Åhlén, CEO of Moelven Töreboda, the company which built the components.

Another significant advantage is that wooden towers can be built at a significantly lower cost than steel, which in turn lowers the overall cost of producing wind power-generated electricity.

The research tower is based at the Swedish Wind Power Technology Centre. "Wind power is expected to be the EU's largest power source as early as 2027. With wind towers in wood, we get even more climate-smarter renewable electricity to face the climate crisis," says Ola Carlsson, director of the Swedish Wind Power Technology Centre.

Modvion has already signed declarations of intent with two Swedish companies for a 110 meter tower and 10 towers at least 150 meters high, respectively. The wooden wind turbine tower could become the industry standard in the near future.

Original article: Mike Scott.

A photograph showing an offshore wind turbine on the left, with its three blades extending upwards. To the right, a large service vessel is positioned in the ocean, equipped with various cranes and equipment, likely involved in the maintenance or construction of the turbine. The sky is clear and blue, and the sea is a deep blue.

Establishing supply chains in emerging markets

TEAMWORK NEEDED

The most widely used definition of sustainable development is Brundtland's 1987 definition: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This definition of sustainability is highly relevant in specifying the relationship between developers and supply chains in emerging markets.

The question remains: How can the wind industry enter a new market and develop the local supply chain when skill shortages exist and still decrease the cost of energy?

In other words, supply chain development in emerging markets relies on long-term economic, social and cultural aspects. In our view, this is the coming together of all three aspects defining the foundation of successful supply chain development. Moving towards emerging markets is a challenge that also brings plenty of opportunities for global collaboration. Different countries will contribute in various ways and their cultural diversity is important when setting local content targets.

However, in the current financial climate, developers are increasingly expected to deliver successful offshore renewables projects on fast track schedules, while also lowering the cost of energy. Project risks must be considered throughout the lifecycle, from tender to construction and operation, remembering that risks increase greatly in supply chains which have little or no experience.

A spirit of partnership

The question remains: How can the wind industry enter a new market and develop the local supply chain when skill shortages exist and still decrease the cost of energy? The answer lies in devising 'win-win' solutions in a spirit of partnership. We are responsible for harmonizing our aims and developing cooperation and trust between all parties, to achieve the common goal of delivering projects on time, within budget and avoiding risks. This way, the whole industry wins. This is the way ahead - a 'team' working with mutual objectives can complete a project within budget and on time.

Partnerships between developers and local supply chains benefit from more open relationships based on trust and cooperation, changing attitudes and altering the way project team members deal with each other. Working together through long-term relationships to improve sustained performance, teamwork, eliminate waste and share the gains.

In the UK, the offshore renewables industry has learnt from the oil and gas industry's Cost Reduction Initiative for the New Era (CRINE) which reduced costs on gas field developments by 40%. In the last 10 years, offshore wind has made huge progress in cutting construction, operation and maintenance costs. Setting realistic local content targets, combined with continuous training and improved procedures to address skill shortages, is the only way to deliver continuous improvements and share success.

Flourishing projects

There is no doubt that the industry needs to educate supply chains to help them enter emerging markets and differentiate between best value and lowest price. One example of a successful, developing supply chain with flourishing projects is seen in Taiwan. Developers are partnering local supply chains with well-known European supply chains to promote knowledge transfer and sustainable long-term collaboration. DNV GL is also engaged with local companies and the government to promote offshore renewables knowledge transfer through training and joint industry projects (JIPs).

When developing any local supply chain in emerging markets, standardization is another issue to consider. For the industry to attain global success, it is important to have a standardized approach and tailor it to local specific requirements. If a supply chain adopts very localized conditions, it may not be sustainable long-term as it will not match recognized global industry standards.

In conclusion, what Sir Michael Latham said over two decades ago in his UK Constructing the Team report is still valid today for developing supply chains in emerging markets: "above all it needs teamwork". Cross-collaboration between mature and emerging markets is key for the success of sustainable supply chain development.

Original article: Per Enggaard Haahr, Head of Department, Civil Engineering, DNV GL.

**ROYAL NIESTERN SANDER, WAGENBORG
AND AMPELMANN SIGN 3RD AGREEMENT**



Egbert Vuursteen (Royal Wagenborg),
Jan van der Tempel (Ampelmann) and
Jan Doorduyn (Royal Niestern Sander)
signing the contract.

W2W gangway for newbuild icebreaker



Ampelmann, Royal Niestern Sander and Royal Wagenborg signed an agreement for the supply of an ice-strengthened walk-2-work gangway. This system will be installed on the newbuild shallow draught icebreaking walk-to-work vessel that will be delivered to its new owners on December 2021.

Together with the vessel, the motion compensated gangway of Ampelmann will perform crew transfer services for up to 40 persons from the shallow Nabil Port to offshore platforms near the East Coast of Sakhalin. The vessel will be operated by Mercury Sakhalin.

Harsh environmental conditions

Building on the local experience of Ampelmann with the N-Type (Icemann), this gangway is specially developed for the harsh environmental conditions at the East Coast of Sakhalin. The integration between the gangway and the vessel is unique, as the system has a winter and summer position by means of a skidding system. This optimizes the safe transfer of the crew changes and the workability of both the system and the vessel. In the winter the gangway is positioned aft as the vessel is operating in ice conditions with transfer direction over the stern. In the summer the gangway is positioned mid-ship for optimal workability. This dual mode results in year-round operational support to the end client.

Third walk-to-work project

This agreement is the third time Ampelmann, Niestern Sander and Wagenborg cooperate. Starting back in 2015 with the Ampelmann A-type installed on the Kroonborg, the second Ampelmann A-type followed on the Kasteelborg in 2018. Both walk-2-work vessels are operated by Wagenborg Offshore in the Southern North Sea and have performed over 100,000 safe crew transfers.

The design and construction of this vessel strengthens the position of Niestern Sander in building specialized offshore vessels, including icebreakers and walk-to-work vessels.

OFFSHORE ENERGY

Change is the only constant. This was as true for the ancient Greek who coined the phrase, as it is for us today. The industry is changing. The world is changing. The need to innovate and transform are key in remaining relevant and future-proof.



Connecting gears of energy transition

Navingo will be providing international exhibitors with exposure that allows them to participate without having to be physically present.

This year it is not business as usual. The COVID-19 virus disrupts every aspect of our daily lives. Companies all over the world are adapting to a new reality. To make right decisions in these confusing times, it is essential to have a broad view. Information from the own sector and neighbouring markets can help spot business opportunities. Sharing knowledge with the community create strong and valuable networks and sparks innovation. It all starts with connecting people.

Exhibition & Conference

Navingo believes that on 27 and 28 October it can present a successful edition of **Offshore Energy Exhibition & Conference (OEEC)**. An edition where face-to-face and virtual connections will be combined. Of course there will be some restrictions with regard to the COVID-19 situation, to make sure that people can connect safely. Think of concepts like wider aisles, one-way lanes, set routes, timeslots for visitors, sanitation stations and reservation systems in different areas are examples of those measures.

In addition to this, Navingo will also introduce virtual connections at Offshore Energy Exhibition & Conference to integrate face-to-face and virtual connections in one event. "Creating an exhibition during corona times is challenging. A situation as this forces you to think outside of the box to create solutions for the never changing need for people to connect," says Nancy Slob-Corpeleijn, Project Organizer Events at Navingo.

Online and offline

The goal is to provide an event that will allow exhibitors, visitors, speakers and sponsors to connect both online and offline with matchmaking, live roundtable discussions, webinars and presentations. While most of these concepts usually only come to life during an event, Navingo wants to expand some of these digital concepts to be available year-round, with the possibility to connect face-to-face at the exhibition.

One example of a new concept is the virtual booth. This addresses uncertainties regarding international travel, a situation made more challenging because travel policies may vary per continent and country. By creating branded stands where the exhibitor and visitor can meet virtually using video conferencing, Navingo will be providing international exhibitors with exposure that allows them to participate without having to be physically present.

"These concepts will connect the event floor together with the digital environment of Navingo Career and recently launched Offshore Energy platform. In that way we can service our customers and global audience regardless of their location," says Anne Visser, Director of Operations at Navingo. "We see these times as an accelerator for innovative initiatives. These new concepts will be an added value for our customers and clients, because they fulfil our main goals: connecting the offshore and maritime industry."

Offshore Energy Platform

The **online Offshore Energy platform** combines all the elements Navingo excels in, making the platform a connector of communities. Expect daily news from markets of interest, in-depth articles and videos, insights from industry leaders, an overview of the important players in the business landscape and job boards.

OffshoreEnergy.biz focuses on the energy transition. The driving force behind this is the state of the Earth. CO₂ emissions are warming up the planet and pollution is damaging ecosystems. To ensure a sustainable future the energy transition is set in motion. Being future-proof within the oil, gas, maritime, offshore wind and marine energy industries means being part of the energy transition and investing in sustainable solutions. This is the way forward, for our business and planet.

This is why the energy transition and sustainable solutions are the main topics the new platform focuses on. The communities - the offshore, maritime and energy industries - are front-runners in this change. A large part of the energy transition will take place at sea and sustainable innovations will reshape the maritime sector. By combining markets, Offshore Energy connects the gears that set the energy transition in motion.



Think about it. Maritime ingenuity is needed to construct wind farms. Electric power is transmitted by subsea cabling. Oil and gas is the fuel that makes the energy transition happen. Other forms of renewable energy, like marine energy, are needed to meet energy demands. Without dredging, ports cannot function. Everything is connected.

Offshore Energy offers insights and foresights. This provides an overview about what is going on in our industries. The platform informs about projects, new products, companies, market opportunities and trends. It provides day-to-day news, combined with in-depth articles and videos.

As an overview, Navigo has combined the editorial power of Offshorwind.biz, OffshoreEnergyToday.com, LNGWorldNews.com, SubseaWorldNews.com, WorldMaritimeNews.com and MarineEnergy.biz. But we understand if you want to narrow it down. That is why we have created different landing pages for specific sectors.

To meet the demands there is a clear navigation between markets, regions and topics. This makes it easy to look at your point of interest from every angle.

Because the editors of Navigo are on top of their subjects and can also take a step back and discuss the various business activities that are going on, they can connect the dots. What trends are intertwined? What developments are overlapping each other and what kind of cross-market collaborations are taking place? The Offshore Energy platform provides this information on the new fast and responsive website, refreshed with UX design.

In the end all developments and activities the website cover, are fuelled by one crucial element: human capital. Navigo understands that and uses the reach of Offshore Energy platform to connect employees with companies. On the job board it gathers job openings from different sectors. The job section offer a broad range of functions from technical positions to marketing jobs.

As for Offshore Energy Exhibition & Conference and OffshoreEnergy.biz, Navigo believes in working together. With its products it connects the maritime and offshore world for sustainable solutions.



Think about it. Maritime ingenuity is needed to construct wind farms.

Without dredging, ports cannot function. Everything is connected.



NWEA TOOK PART IN NEGOTIATIONS

Collaborating for implementation of North Sea Agreement

Mid-June the Dutch Cabinet has embraced the North Sea Agreement and presented it to the House of Representatives. NWEA chairman Hans Timmers took part in the negotiations on behalf of the wind sector over the last year. Other participants were stakeholders such as the gas companies, NGOs for nature and fishery and the National government.



'Collaboration is necessary, now and later.'

Hans Timmers, NWEA

The implementation and affordability are discussed constructively with the Ministry of Economic Affairs & Climate because, from a wind energy perspective, the goals and affordability of the climate agreement must be served with an affordable energy mix.

Hans Timmers: "Collaboration is necessary, now and later. After all, space is scarce for nature, fishing, shipping and energy, we can only solve that together. From a well-mapped roadmap, we must seize this opportunity with both hands. A healthy balanced North Sea gives us all benefits; fishing, nature and energy go hand-in-hand with preferably multiple use of space. The agreement is a good first step for that."

NWEA emphasizes the importance of the North Sea to achieve the goals of the climate agreement by 2050. Lots of wind energy is the most important sustainable source for this, in a well-integrated energy system with accompanying infrastructure.

NWEA looks forward to the implementation of the North Sea Agreement and the need to give the North Sea a substantial qualitative boost.

So that qualitative benefits for society with healthy nature and sustainable fishing, but also the Climate Agreement, come a step closer. NWEA sees that major steps still need to be taken in the breadth of the energy transition: electrifying faster in order to bring supply and demand closer to industry as close as possible and to keep the social costs of the transition as low as possible.

The wind sector considers it important to have reached an agreement with all stakeholders and ministries about the transition to a sustainable North Sea and achieving the climate goals. It is therefore good that in addition to the Roadmap 2030 (total 11.5 GW in 2030), a start has also been made on designating areas for wind farms, eventually to a total of 60-70 GW in 2050. Wind will soon be the largest supplier of sustainable electricity by 2030. This requires enormous efforts from the sector, but also from all other stakeholders at sea. Without government incentives, we can make a major contribution to a green energy supply, provided that the enormous demand for and purchase of electricity is realized on time. This is stated in the Climate Agreement and is an important starting point for NWEA.

BLADE DEFECTS CAN BE DETECTED AT AN EARLY STAGE



Wind turbine blade condition monitoring with BladeSave

Wind energy is one of the fastest growing sectors in the world's energy markets. However, wind turbine blades are susceptible to fatigue failure and adverse environmental effects. The most cost-effective maintenance strategy to ensure healthy and functional blades is to employ a condition monitoring system to assess blade status continuously. This means that blade defects can be detected at an early stage, and fixed quickly, effectively at a low cost. Unattended blade cracks will grow and propagate under fatigue loading, eventually leading to blade failure that requires a costly blade replacement.



Aiming to develop and validate a condition monitoring system for wind turbine blades, five companies including TWI, Renewable Advice, EWT, Halliburton and ASSIST formed the BladeSave consortium to combine their expertise in structural health monitoring (SHM), fibre optic sensing technology as well as management software that incorporates risk based blade data analysis.

The BladeSave system features an innovative design, which offers multi-sensing capabilities including acoustic emission (AE), vibrations and strain, achieved with Fibre Bragg Grating (FBG) sensors. This all-optic design brings the benefits of system's immunity to static electricity, EMI noise and lightning. BladeSave also combines a blade management software (windmanager) linking the data from inspection and maintenance to the SHM data, offering a comprehensive solution for wind turbine blade monitoring, repair and management.

The BladeSave system has been successfully demonstrated in a wind turbine from project partner EWT for more than 3 months, during which time the system has obtained long-term operational profiles described by processed SHM data including AE, vibration and strain. The BladeSave system has been tested for ice accretion on blade surfaces with simulated mass. The testing results showed evident detection capabilities.

The final stage of this project entails destructive testing on a wind turbine blade to be conducted at TWI. The BladeSave system will be installed to monitor the process with a commercial system employed for comparison. For this testing, controlled cyclic loading will be applied repetitively to gradually simulate blade crack initiation and propagation. It is expected that the system will demonstrate its capabilities to detect cracks in early stages and support maintenance decision making.

The BladeSave project has received funding from the European Union's Horizon 2020 programme.

PARTNERSHIP BETWEEN M04 AND JACK-UP BARGE



Forecasting jack-up barge motions

The first jack-up platform was built in 1950, and since then these barges have been used extensively in the offshore industry. Most often they were used as a stable drilling platform (MODU). At present jack-up platforms are involved in the construction and maintenance of offshore wind farms as well.

The rules that are commonly applied on jacking operations of wind turbine installation jack-up vessels (WIV) are the same as MODUs. However, the operational profile of a WIV is different: they jack up and down regularly, whereas a MODU jacks only a few times per year. There is a need for better guidelines for this weather dependent operation.

An important limitation of the jacking operation is the impact of the footing (lower end of the legs) on the soil. The vessel moves in waves, which causes the footings to hit the soil with a higher velocity than in still water. Too large impact loads can lead to damage in the jacking system. As you can imagine, damaging the jacking system with the footings close to the seabed is an unwanted and dangerous situation. Therefore, we have to put a limit on the ship motions to prevent damage.

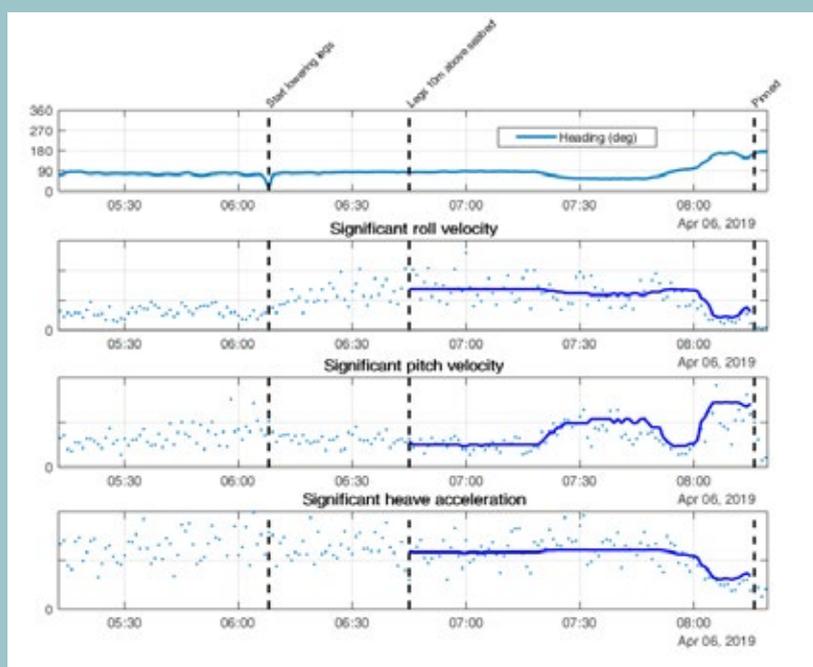
MO4 has developed a module that forecasts the motions of the jack-up. It is flexible: for every water depth, length of leg lowered and loading condition it can determine how the vessel is going to move in waves. This is quite complex, as the characteristics of the vessel change as the legs are being lowered. The lowering causes the roll and pitch period of the vessel to significantly change. It has a direct impact on the motions in waves. For the hydrodynamicists among us: we again use a frequency domain model of the vessel. We add the hydrodynamic mass and Froude Krylov force to the model. The entire system is solved iteratively in order to properly take the drag of the legs into account.

Recently MO4 has tested the jacking module in collaboration with Jack-Up Barge on the JB-115 barge. J-UB is continuously working on ways to ensure the integrity of their barges whilst maximizing weather windows for improved planning and workability. They find that innovation is a key aspect to deliver excellent customer service. J-UB's openness to innovation has led to a partnership with MO4.

The JB115 is now working in the Deutsche Bucht. We were able to forecast and measure the motions during the transit and final move. The supplier of the weather forecasts—we always use 2D wave spectra—was BOC. We have been able to compare the weather forecast to buoy measurements, and the resemblance was very good.

Obtaining relevant information from the measurements is not straightforward. Characteristics change as the JB115 changes heading or lowers its legs. We have chosen to show the 1 minute significant motion and a smoother to find the actual significant motion. A significant motion is a similar metric as the significant wave height (approximately 1/3rd of the peaks are larger). MO4 forecasts the significant motions. The MRU measures accelerations and angular velocities, which we use for the comparison and decision support for jacking operations.

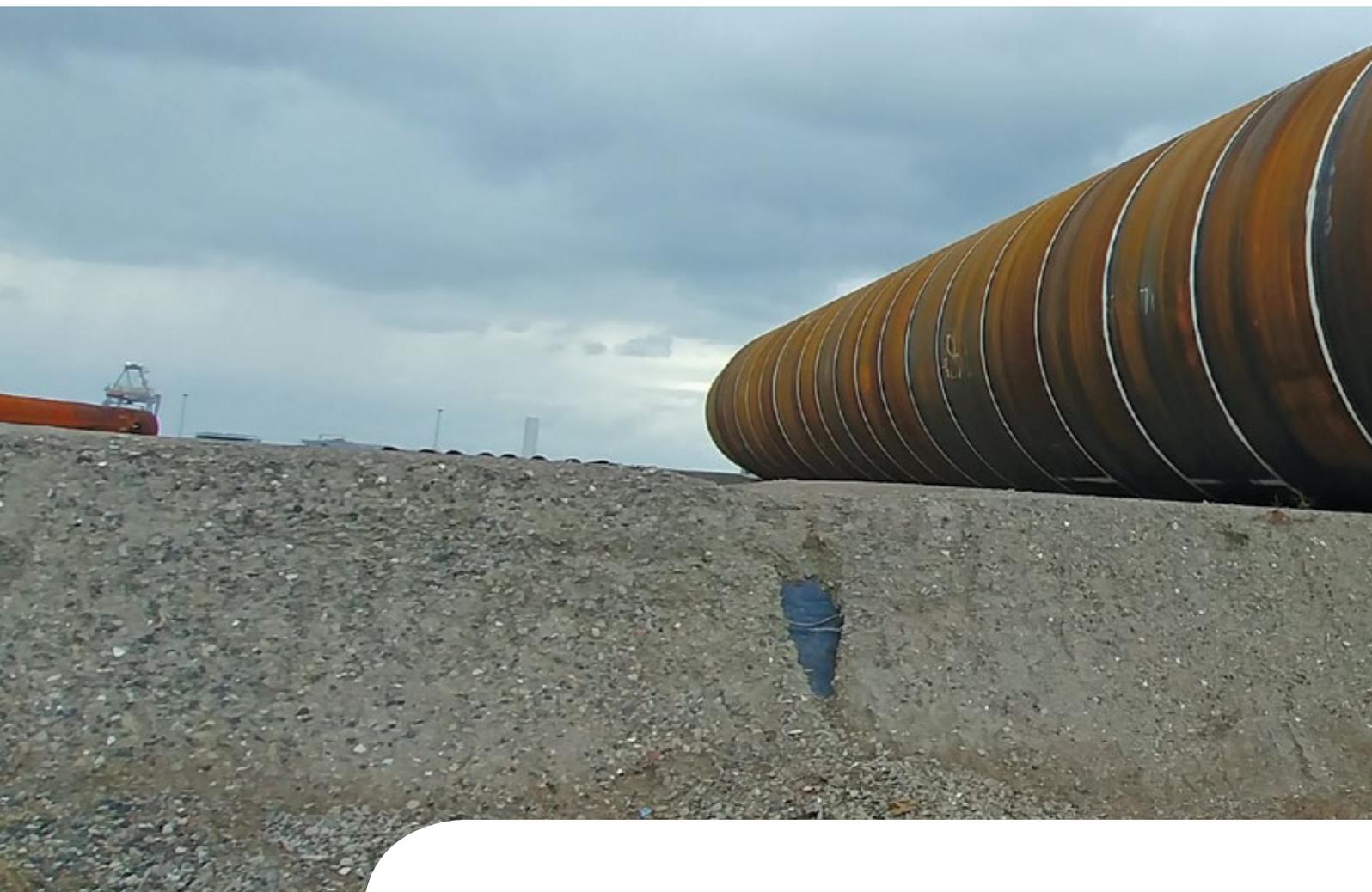
A figure with the comparison is shown below. The upper plot shows the heading of the vessel, the three lower plots respectively show roll and pitch velocities, and heave acceleration. The dots are measurements, and the straight line is MO4's forecasts.



MO4 can make a few observations:

- There is a clear change in motions as the heading changes or the legs are lowered;
- The motion forecasts smoothly runs through the measurements (dots) and follows heading changes very well.

This means the frequency domain model performs well. MO4 compares the forecasted motions with limits from engineering. This removes the need of a lot of simplifications, most notably on the sea state and loading condition, and is therefore more accurate. As engineering is by and large conservatively done, a higher accuracy leads to more workability.



**SCHERPER INZICHT IN SLIMMERE EN
KOSTENEFFICIËNTE WINDTURBINES**

Onderzoek naar cyclische belasting van monopiles

Ongeveer 80% van de windturbines op zee staan op monopiles. Deze cilindervormige palen zijn ontworpen om de krachten en omgevingscondities te kunnen weerstaan. Hierbij speelt de interactie tussen grond en paal een grote rol. Binnen het project 'Monopile Improved Design through Advanced cyclic Soil modelling' (MIDAS), richten Nederlandse onderzoekers en bedrijven zich op een verbeterde rekenmethode van deze monopaal-bodeminteractie. Zo willen ze slimmere en kostenefficiëntere ontwerpen mogelijk maken.

Monopiles zijn met een diameter tot wel 8,5 meter en 1.800 ton staal gigantisch.



Monopiles zijn met een diameter tot wel 8,5 meter en 1.800 ton staal gigantisch. Misschien zijn ze wel te robuust ontworpen. "Dit komt omdat we onvoldoende weten van de precieze krachten op de steeds grotere palen en de interactie met de grond," zegt projectmanager Maxim Segeren van de TU Delft. "Daarom zitten in het ontwerp aannames en veiligheidsmarges. Daarin kunnen nog stappen worden gemaakt. Met de nieuw verworven kennis en de toepassing hiervan willen we deze constructies lichter en goedkoper maken."

Cyclische belasting

Samen met Deltares gaat de TU Delft de cyclische belasting van monopiles onderzoeken. Het gaat hierbij bijvoorbeeld om continu schudden waardoor er vermoeiing kan ontstaan. De grond speelt een enorme rol bij de stabiliteit en een optimaal ontwerp van de paal. "We gaan de belastingen en de effecten nabootsen en daarmee computermodellen valideren. Dat is noodzakelijk als je het gedrag wil voorspellen bij variaties. Denk bijvoorbeeld aan grondcondities, paaldiameters en andere belastingen van onder andere windturbines. We geloven dat we hiermee palen lichter en ook korter kunnen maken."

Onderzoek en markt tezamen

De twee onderzoeksinstituten werken nauw samen binnen het GROW R&D

consortium met marktpartijen die offshore windparken bouwen en exploiteren. "Dat maakt dit project zo waardevol," zegt Segeren. "Een van de projectdoelen is dat de markt de nieuw opgedane kennis en resultaten zo snel in de praktijk kan brengen. Zijn er knelpunten, dan kunnen wij die direct in het project helpen wegnemen. Andersom beschikken wij in dit project over unieke en waardevolle data van onze projectpartners. Met die data uit de verschillende windparken kunnen we ons rekenmodel aanscherpen."

5% minder staal

Het onderzoeksproject moet in 2023 leiden tot wereldwijd unieke datasets, computersimulaties en rekenmethoden. Daarmee is het mogelijk om preciezere ontwerpen te maken met tot wel 5% minder staal. Ook de levensduur van de palen kan ermee worden vergroot. Het zou een potentiële besparing opleveren van miljoenen euro's. "Dat is interessant voor elke marktpartij. Van dit onderzoek profiteert op termijn de windenergiesector in de hele wereld." Topconsortium Kennis en Innovatie (TKI) Wind op Zee jaagt met haar programmalijn 'Kostenreductie en Optimalisatie' innovatieve oplossingen zoals MIDAS aan. Vanuit de Hernieuwbare Energie regeling die de Rijksdienst voor Ondernemend Nederland (RVO) in opdracht van het ministerie van Economische Zaken & Klimaat uitvoert, is het project met subsidie ondersteund.



ADIPEC 2020: GA MET ONS MEE!

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, WPUPOVAC@IRO.NL
- **HANDELSMISSIES** NEM CONTACT OP MET TJERK SUURENBROEK, T.SUURENBROEK@IRO.NL
- **CURSUSSEN** NEM CONTACT OP MET BARBARA VAN BUCHEM, B.VANBUICHEM@IRO.NL
- **OVERIGE ZAKEN** NEM CONTACT OP MET IRO, VIA INFO@IRO.NL OF TELEFOONNUMMER 079-3411981.

Van 9 tot 12 november 2020 vindt 's werelds meest toonaangevend en invloedrijkste event voor de olie- en gas industrie plaats in Abu Dhabi.

Laat jezelf op dit event ook zien aan de wereld. 2019 trok zo'n 155.000 bezoekers, waarbij ministers van energie, wereldwijde CEO's en toonaangevende besluitvormers samenkwamen met de bedrijven die de toekomst van de olie- en gasvoorziening vormgeven. Vier dagen gericht zakendoen, dialoog en kennisoverdracht die inspeelt op de energiebehoeften van vandaag en het energielandschap van morgen definieert.

We hebben nog plek beschikbaar in ons mooie Holland Paviljoen. Meld je snel aan!

Wij staan in nauw contact met de organisatie en houden zelf ook de situatie nauwlettend in de gaten. De ADIPEC organisatie gaat er vooralsnog vanuit dat het event doorgaat en heeft bevestigd dat in geval van annulering vanwege het Coronavirus, volledige terugbetaling volgt.

Meer weten? Neem contact op met [Wasilika Pupovac-Moutzouridis](mailto:W.Pupovac-Moutzouridis@iro.nl), of kijk op onze website voor meer info.



IRO PER 1 MEI 2020 LID VAN VNO-NCW

IRO is per 1 mei 2020 lid geworden van VNO-NCW. Wij zien dit lidmaatschap als belangrijke stap om in de toekomst nog beter gehoord en ondersteund te worden.

Samen met onze partners van Nederland Maritiem Land en vanuit VNO-NCW zijn wij ervan overtuigd dat wij nog beter in staat zullen zijn om het belang van de Nederlandse Offshore Energie Industrie ook bij onze regering op het hoogste niveau te bepleiten.



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NIEUW LID IN DE SCHIJNWERPERS: DRONEQ AERIAL SERVICES

IRO heeft recentelijk DroneQ Aerial Services als nieuw lid mogen verwelkomen. In een persoonlijk interview met John Troch maken wij kennis met DroneQ Aerial Services.

Waar blinken jullie in uit?

“DroneQ verzorgt drone ondersteunende activiteiten voor met name de offshore industrie. Wij hebben een offshore achtergrond, voornamelijk met onderwaterrobots om inspecties uit te voeren.

Dat hebben we 20 jaar gedaan, en dat passen wij nu toe in de drone industrie. Het hele concept is opgebouwd op basis van ISO normering, zodat we volledig aantoonbaar in control zijn over hetgeen wat we doen.

We voeren inspecties uit, zoals visuele inspecties, video inspecties en er is een nieuw segment toegevoegd en dat is drone delivery, het vervoeren van bijvoorbeeld oliemonsters of computeronderdelen. Verder brengen we ook gebieden in kaart, zoals zeegebieden. Kortom een heel breed palet.

Het voordeel van het inzetten van drones is tweeledig, het is zeer snel én goedkoop. Vervoeren van urgente medicijnen of onderdelen per helikopter kost ongeveer 3500 euro per uur en voor een drone heb je maar 200 euro per uur aan kosten. Een drone heeft daarnaast 200 keer minder emissie dan een helikopter. “

Wat trok jullie over de streep om lid te worden?

“IRO is een begrip. Het geeft ons de mogelijkheid om onze activiteiten aan een breder publiek te presenteren. Jullie zijn geadviseerd door een projectleider van het NHN, die werkt aan het project MDI (Maritime Drone Initiative). De marketing werkt dus blijkbaar prima!”

Wat heb jullie de andere leden te bieden?

“Wij kunnen IRO leden hoogwaardige inspecties en algemene drone ondersteuning bieden. Het embedden binnen operationele processen van het desbetreffende bedrijf, dat is een heel belangrijke meerwaarde. Wij zijn dus in staat om onze diensten onderdeel te laten vormen van operationele processen van klanten.”

Hoe blijven jullie zichtbaar in deze coronatijd?

“Corona heeft gelukkig een minimale impact op ons bedrijf. Het voordeel is dat wij in kleine teams werken, dan is het te overzien. De vluchtvoorbereiding vindt remote plaats, het vliegen zelf is maar 10%. Het risico van fysiek contact is dus heel laag. Daarnaast hebben wij alles in eigen beheer, voor de opdrachtgever betekent dat een laag risicoprofiel wat betreft levering. Behalve bij slecht weer, daar hebben we dan geen invloed op! Drones zijn verder altijd inzetbaar. We worden nu actief gebeld door klanten voor grote projecten. Vooral drone delivery doet het goed. Ze weten ons nu ook goed te vinden en de vraag is alleen maar toegenomen.”



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ZOEK VERBINDING EN BLIJF ZICHTBAAR! SPECIALE KORTING VOOR IRO LEDEN OP PROFESSIONELE VLOGS

Als ondernemer ben je voortdurend bezig om jezelf te profileren naar de buitenwereld. In deze tijd van minder fysiek contact is het zoeken naar een leuke en creatieve manier om je als bedrijf te onderscheiden en in de picture te blijven. Wij helpen daar graag bij! **NorthCmedia** en IRO hebben de handen ineengeslagen met een aantrekkelijke VLOG-actie om IRO leden een podium te geven en de steunen in deze tijd.

Vakkundig en spontaan

Het maken van een vlog is een originele creatieve manier, het kost niet al te veel tijd en het is erg betaalbaar. Maar wat vooral zo leuk is aan deze video's, is dat je op de hoogte blijft van de ontwikkelingen van projecten vanuit een ander perspectief. Dus uit het oogpunt van de medewerker, wat het geheel spontaan en ook gelijk heel vakkundig maakt, want zij weten als geen ander het enthousiasme en specialisme over te brengen binnen hun vakgebied.

Deze video's duren doorgaans maximaal 1-2 minuten en blijken een groot succes te zijn. Ze zijn perfect om te delen via social media en binnen je netwerk, om op die manier in de picture te blijven. Naast dat je zelf de beschikking krijgt over het filmpje, zal IRO de filmpjes ook delen via de [IRO LinkedIn company pagina](#) (2000+ volgers), Instagram en bij je eigen [bedrijfsprofiel](#) op de IRO website, voor een extra groot bereik!

RIVM proof

NorthCmedia werkt geheel RIVM proof. De vlogger heeft een eigen microfoon en natuurlijk wordt gepaste afstand in acht genomen. NorthCmedia begeleidt het proces van het begin tot het eind, en haalt het beste uit je naar boven. In iedere persoon schuilt een talent, als bedrijf krijg je de mogelijkheid om professioneel en visueel naar buiten te treden op een laagdrempelige manier. Zeker in deze tijd een must!

25% korting voor IRO leden

Het maken van vlogs heeft normaal een vaste prijs van €695, en nu met 20% korting op elke vlog om bedrijven te steunen in deze tijd. **IRO leden ontvangen echter nog eens 5% extra, dus 25% in totaal.**

Dus wil je met jouw bedrijf, product of dienst in de spotlights staan?

Voor slechts €521,25 per vlog all-in boosten we je business!

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IVO MULLER NIEUW BESTUURSLID YOUNG IRO



We zijn verheugd aan te kondigen dat Ivo Young IRO gaat versterken in zijn rol als Young IRO Bestuurslid.

“Toen ik jonger was, was 'duurzaamheid' niet het eerste onderwerp dat mijn aandacht trok. Maar nadat ik een paar jaar voor Van Oord had gewerkt aan verschillende projecten over de hele wereld op het gebied van gezondheid, veiligheid en milieu, kwam ik erachter dat dit de toekomst is. Of zoals ik zou zeggen: 'moet de toekomst zijn!'.”

“De laatste jaren werk ik in de Olie & Gas sector en in mijn rol zie ik veel initiatieven op dit gebied voorbij komen. Een van mijn persoonlijke doelen zal zijn om deze informatie te delen om via Young IRO meer bewustzijn te creëren onder andere sectoren en personen. Samen kunnen we de toekomst verbeteren, zelfs als het stap voor stap is.”



GESLAAGDE PREMIÈRE VAN HET IRO WEBINAR

It's a wrap! Dinsdag 19 mei was de première van onze eerste webinar met actuele thema's zoals crisiscommunicatie en remote werken. Met 60 deelnemers was de online bijeenkomst goed gevuld, net zoals wij gewend zijn bij onze fysieke bijeenkomsten.

Jos Govaart, spreker van [Coopr](#), deelde zijn kennis over crisiscommunicatie. Is een crisis altijd een crisis of is het drama? Hoe communiceer je dan tijdens een crisis? Met handige checklists en take aways gaf Jos antwoord op deze vragen.

Lotte Spijkerman, spreker van het [Happiness Lab](#), en Esther Zijregtop, spreker van [VoorDeThuiswerkers.nl](#), gaven inzicht in werkgeluk en remote werken. Want wat doet dit met werknemers en zouden we dit in de toekomst willen blijven doen? Het antwoord op deze laatste vraag was volmondig 'JA, in de toekomst is thuiswerken een blijvertje'.

De presentaties werden afgewisseld met polls en vragen vanuit het online publiek om het interactieve element, dat anders snel verloren gaat bij een webinar, toch actief te houden. Na de presentaties was er nog gelegenheid om te netwerken en vragen te stellen in aparte break-out rooms. Netwerken kan dus óók goed online.

Wil je de presentaties nog eens op je gemak doornemen, dan kun je deze bekijken via onderstaande links.

[Presentatie Crisiscommunicatie](#)

[Presentatie Remote werken](#)

Smaakt dit nu naar meer? Jazeker!

INVESTEREN IN EEN SCHONE GEZONDE NOORDZEE? INSPIREER MET UNIEKE BEEDEN EN VERHALEN!

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Stichting Duik de Noordzee Schoon gelooft in een schone en gezonde Noordzee waar visserij, energiewinning en recreatie duurzaam in harmonie is met flora en fauna.

Gestart door ervaren Noordzee wrakduikers, wil de Stichting het belang van natuurlijke en kunstrijfen in de Noordzee op de kaart zetten. Jaarlijks organiseert zij één of meerdere expedities naar bijzondere gebieden in de Noordzee met als doel de kennis van de Noordzee te vergroten, scheepswrakken te beschermen tegen vernieling en afval te bergen. De vrijwilligers van Stichting Duik de Noordzee Schoon zijn voor Energy Reinvented Community en IRO een grote inspiratiebron. Volledig bekostigd uit eigen bijdragen en donaties zetten expeditieleden zich in om de Noordzee te beschermen.



Beelden en verhalen over 14 duikexpedities van de stichting zijn opgenomen in het avontuurlijke boek **IN DE DIEPTE**. Dit boek geeft een prachtig beeld van veertien avontuurlijke en bijzondere ontdekkingsreizen naar alle uithoeken van de Noordzee (impressie). Er komen unieke riffen met hun flora en fauna op de zeebodem voorbij. Energy Reinvented en IRO hebben de handen ineengeslagen om een extra 'duikdag' mogelijk te maken tijdens de expeditie die is gepland in september 2020.

Hoe kunt u bijdragen?

Speciaal voor onze leden brengt de stichting een speciale Engelstalige versie uit van het boek. Uw bijdrage maakt hopelijk én de productie van het boek mogelijk én een extra 'duikdag' in september. Bijdragen kan op vele manieren:

- Als u voor 1 juli 2020 minimaal 50 boeken bestelt, ontvangt u 20% korting (prijs is dan € 19,50 per exemplaar). De boeken zijn leverbaar vanaf 15 augustus 2020
- Kies voor dit mooie relatiegeschenk en draag eenmaal € 5.000 bij en u krijgt logovermelding op de achterzijde van het boek
- Een gepersonaliseerde editie van 'In de Diepte' met eigen logo behoort tot de mogelijkheden bij een bestelling vanaf 500 exemplaren
- Bestuursleden van de stichting geven graag een multimedia lezing 'In de diepte' voor een bijdrage vanaf € 800,-
- Partner worden en aansluiten met een jaarlijkse bijdrage kan ook; bezoek hiervoor de website www.vriendenvandennoordzee.nl

Bekijk deze korte trailer het bijzondere werk van de vrijwilligers, of kijk op de website van Duik de Noordzee Schoon. Giften aan deze stichting met ANBI-status zijn fiscaal aftrekbaar. Voor al uw bijdragen en/of vragen graag reageren via pr@duikdenoordzeeschoon.nl.

"IN DE DIEPTE biedt een prachtig beeld van de wereld van de Noordzee onder water. Wij hopen dat we met de Engelstalige versie onze leden voorzien van een mooi relatiegeschenk én een duikdag mogelijk kunnen maken.", Susan Kimkes (ERC) en Tjerk Suurenbroek (IRO).

Wij zijn met z'n allen erfgoed plichtig aan onze Noordzee en rekenen op u!

BEURSGENOTEERD

ADIPEC 2020, 9 - 12 NOVEMBER 2020, ABU DHABI

Boek nu je stand in ons Holland Paviljoen via onze website!
Contact: w.pupovac@iro.nl

OSEA 2020, 24 - 26 NOVEMBER 2020, SINGAPORE

Info via NMT, lacet@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

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RAPPORT KANSEN ENERGIETRANSITIE TOPSECTOR WATER & MARITIEM

Om klimaatdoelen tijdig te bereiken, dient iedereen een bijdrage te leveren aan de energietransitie. De partijen aangesloten bij Topsector Water & Maritiem hebben daarvoor een aantal mogelijkheden in huis die niet alleen goed zijn voor het klimaat, maar ook het verdienvermogen en de concurrentiekracht van de sector kunnen versterken.

Topsector Water & Maritiem heeft aan Stratelligence verzocht om een beknopte verkenning uit te voeren naar deze kansen voor de Topsector. Doel van de studie is de energietransitie voor de sector te vertalen in kansen op basis van de huidige marktpositie en sterkten, rekening houdend met de internationale strategieën en zo een mogelijk transitiepad te schetsen naar een duurzame toekomstbestendige marktpositie. Waar mogelijk wordt een vergelijking met landen zoals Duitsland, Frankrijk, Noorwegen, Italië, het Verenigd Koninkrijk en de Verenigde Staten gemaakt.

[Lees hier het volledige rapport.](#)



PRESENTATIE NEXSTEP RE-USE AND DECOM REPORT 2020

Op donderdag 2 juli a.s. zal Nexstep's Re-Use en Decommissioning rapport worden gepresenteerd. U kunt deze bijeenkomst via een live-streaming volgen. [Klik hier](#) voor meer informatie en registratie.



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

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

| | |
|----------------------------|--|
| 1 JULI | CURSUS OFFSHORE WIND BASICS DELFT |
| 2 JULI | LEDENBIJENKOMST BIJ KENZ FIGEE ZAANDAM |
| 17-19 AUGUSTUS | OTC ASIA ONLINE |
| 31 AUG - 3 SEPT | ONS GEANNULEERD |
| 9 SEPTEMBER | CURSUS OFFSHORE WIND BASICS DELFT |
| 15 SEPTEMBER | BESTUURSVERGADERING N.T.B. |
| 16 - 17 SEPTEMBER | IADC DRILLING HSE&T EUROPE 2020 CONFERENCE & EXHIBITION AMSTERDAM |
| 17 SEPTEMBER | INTRODUCTIECURSUS 'OFFSHORE ENERGIE: VAN FOSSIEL TOT RENEWABLE' ROTTERDAM |
| 21 - 24 SEPTEMBER | RIO OIL & GAS UITGESTELD |
| 26 SEPT - 3 OKTOBER | ENERGIE HANDELSMISSIE MEXICO MONTERREY, MEXICO CITY |
| 27 - 28 OKTOBER | OFFSHORE ENERGY + NAVINGO CAREER EVENT AMSTERDAM |
| 9-12 NOVEMBER | ADIPEC ABU DHABI, V.A.E. |
| 12 NOVEMBER | INTERNATIONAL RELATIONS & COMMUNICATIONS COMMITTEE N.T.B. |
| 19 NOVEMBER | ALGEMENE LEDENVERGADERING N.T.B. |
| 24 - 26 NOVEMBER | OSEA SINGAPORE |
| 1 - 4 DECEMBER | WINDENERGY HAMBURG HAMBURG, DUITSLAND |
| 2 DECEMBER | CURSUS OFFSHORE WIND BASICS DELFT |
| 3 DECEMBER | INTRODUCTION TRAINING 'OFFSHORE SAFETY' DELFT |
| 10 DECEMBER | BESTUURSVERGADERING N.T.B. |
| 10 DECEMBER | INTRODUCTIECURSUS 'OFFSHORE ENERGIE: VAN FOSSIEL TOT RENEWABLE' ROTTERDAM |
| 2021 | |
| 6 JANUARI | IRO NIEUWJAARSRECEPTIE N.T.B. |
| 21 OKTOBER T/M 31 MAART | DUBAI EXPO DUBAI, U.A.E. |
| 27 - 29 APRIL | WINDEUROPE COPENHAGEN 2021 KOPENHAGEN, DENEMARKEN |
| 3 - 6 MEI | OTC HOUSTON, VS |
| 23 - 26 JUNI | CONGRESO MEXICANO DEL PETRÓLEO MONTERREY, MEXICO |

VOOR DE MEEST ACTUELE INFORMATIE, CHECK DE ONLINE IRO CALENDAR



IRO CURSUSSEN IN HET MARITIEM MUSEUM WEER MOGELIJK OP 1,5 METER!

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Goed nieuws: het Maritiem Museum heeft op 1 juni haar deuren weer geopend.

Dit houdt ook in dat de IRO cursus 'Offshore energie: van fossiel tot renewable', inclusief bezoek aan de unieke Offshore Experience, weer fysiek kan plaatsvinden. De eerste cursus in het Maritiem Museum, uiteraard volgens RIVM richtlijnen, vond plaats op 10 juni. Zie hier een [impressie](#). Check de [online IRO calendar](#) voor meer actuele informatie en aanmelden.

IRO CURSUSSEN I.S.M. DOB-ACADEMY DEELS ONLINE

Cursussen van de DOB-Academy zijn (tot nader order) deels aangepast naar online events.

De inhoudelijke programma's zijn hier ook op aangepast. Check de [online IRO calendar](#) voor meer actuele info!



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: • 17 september • 10 december

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

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SOLIDD STEEL STRUCTURES

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SOLIDD STEEL STRUCTURES is gespecialiseerd in engineering, fabricage en montage, maar ook in het onderhoud van dynamisch belaste beweegbare staalconstructies, zoals bruggen, sluisdeuren, kranen en offshore toepassingen.



1-DAAGSE CURSUS OFFSHORE WIND BASICS

Deze cursus wordt georganiseerd door DOB-Academy in samenwerking met IRO en NWEA. Tijdens deze cursus leren de deelnemers de basis van de Offshore windenergie industrie.

Inhoud cursus

- Inzicht verkrijgen in de snelle groei en ontwikkeling van de offshore windenergie industrie
- Kennis opdoen over het effect van beleid en van wensen vanuit de maatschappij op de ontwikkeling van offshore windenergie
- Begrijpen hoe wind wordt omgezet in elektriciteit en hoe deze elektriciteit de consument bereikt
- Begrijpen hoe een business case wordt gemaakt voor het opwekken van windenergie op zee
- Inzicht verkrijgen in de levenscyclus van een windpark, inclusief ontwerp, constructie, installatie, werking en onderhoud

Locatie: DOB-Academy, Raam 180, 2611 WP Delft

Kosten: € 495,- excl. BTW

Het cursusgeld is inclusief lesmateriaal en lunch

Voertaal: Nederlands

(Engels indien Engelstaligen in de cursus)

Tijd: 08.30 - 17.15 uur

Beschikbare data 2020: • 9 september • 2 december

Check de [online IRO calendar](#) voor meer informatie en aanmelden



1-DAAGSE CURSUS OFFSHORE SAFETY

Deze cursus leidt deelnemers op om praktische veiligheidsmaatregelen correct toe te passen, maar daarnaast ook om hun verwachte veiligheidsgedrag te ervaren en te leren hoe ermee om te gaan. Deze cursus wordt georganiseerd in samenwerking met DOB Academy.

Leerdoelen

- De basisprincipes van veiligheid begrijpen
- Leren praktische veiligheidsmaatregelen toe te passen
- Inzicht verkrijgen in het effect van menselijk gedrag op veiligheid
- Omgaan met individueel verwacht veiligheidsgedrag
- Een duurzame proactieve houding aannemen met betrekking tot veiligheid

Twee belangrijke veiligheidstheorieën, de Bow Tie Theory en de Hazard Identification Theory, zullen in theorie en in praktische gevallen worden uitgewerkt.

Daarnaast wordt de Failure Mode and Effects Analysis Theory besproken, gevolgd door een meer gedragsmatige benadering van veiligheid. De dag zal worden afgesloten met een examen.

Locatie: DOB-Academy, Raam 180, 2611 WP Delft

Kosten: € 495,- excl. BTW

Het cursusgeld is inclusief lesmateriaal en lunch

Voertaal: Nederlands *(Engels indien Engelstaligen in de cursus)*

Tijd: 09.00 - 17.15 uur

Beschikbare data 2020: • 3 december

Check de [online IRO calendar](#) voor meer informatie en aanmelden.

Completion of 20 lifts in North Sea

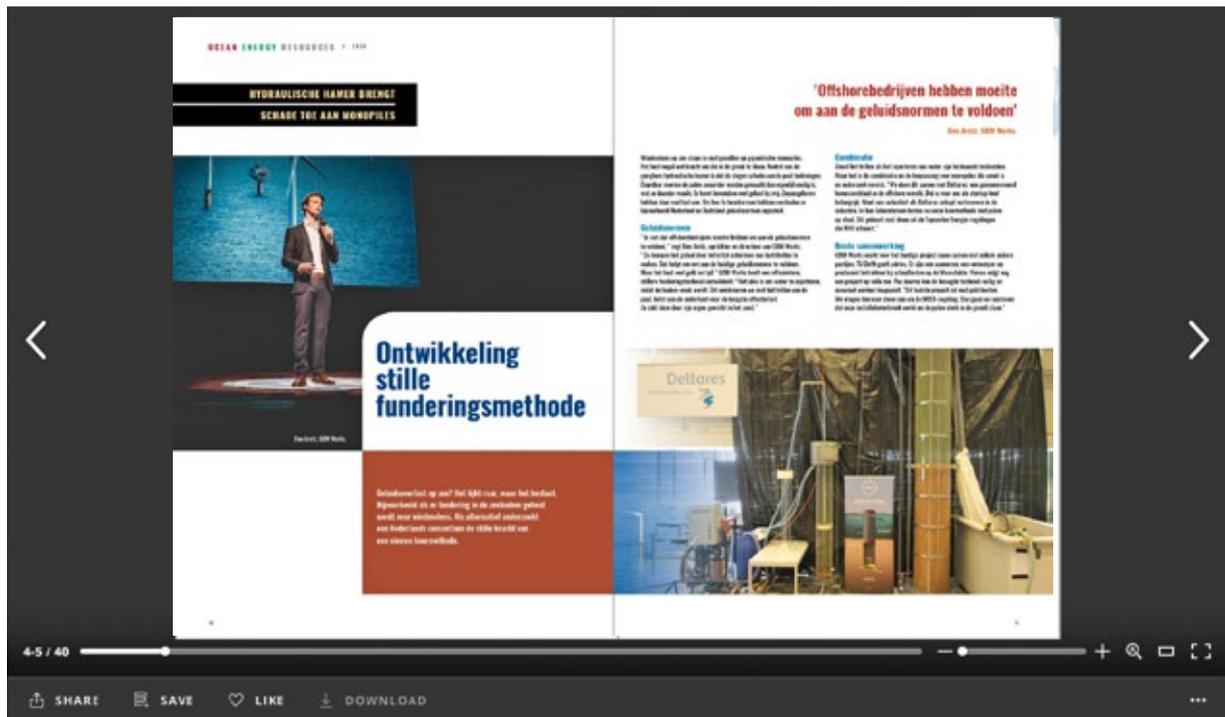


On a beautiful Saturday morning at the end of June, 2020, crane giant Sleipnir completed the last of the 20 planned lifts in the Tyra Wellhead and Riser Removal Campaign in the North Sea.

Safely and on schedule. Fantastic work from the teams offshore and onshore according to Morten Hesselager Pedersen Vice President, Head of the Tyra Redevelopment at Total.

It is now time to turn the page and focus on the next exciting chapter of the Tyra Redevelopment: the single-lift removal of the Process Platform at Tyra East.

Ocean Energy Resources



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