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**World's first
offshore
energy island**

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ELIA AWARDS EPCI CONTRACT TO DEME AND JAN DE NUL

World's first offshore energy island

The Belgian consortium TM EDISON (Jan De Nul and DEME) has won the tender for the construction of the world's first artificial energy island. The construction of the foundations of the Princess Elisabeth Island will begin in early 2024 and will last 2.5 years. After that, the installation of the high-voltage infrastructure can be started. The latter will be necessary for bringing the electricity from Belgium's future offshore wind zone to shore. The island will also be the first building block of an integrated European offshore electricity grid that will connect various hubs and countries together. For instance, Belgium wants to build additional joint interconnections with Great Britain and Denmark. These will give Belgium access to the massive amounts of renewable energy that are needed to make our industry less dependent on fossil fuels in the short term.



The tender process for the island started in January 2022.

Elia received multiple bids from companies based in Belgium and abroad. On the basis of the defined criteria, the Belgian consortium TM EDISON emerged as the winner. Elements such as technical quality and commercial and contractual conditions played a significant role. Attention to safety also played a decisive role. In addition to a specialised fleet, DEME and Jan De Nul hold experience and expertise in the field of dredging, land extension, coastal protection and civil engineering.

Innovative tour de force

The Princess Elisabeth Island will be the world's first artificial energy island that combines both direct current (HVDC) and alternating current (HVAC). The island's high-voltage infrastructure will bundle the wind farm export cables of the Princess Elisabeth zone together, whilst also serving as a hub for future interconnectors with Great Britain (Nautilus) and Denmark (TritonLink). These are so-called 'hybrid interconnectors' that have a dual function and are therefore more efficient. They facilitate the exchange of electricity between countries and are also connected with gigantic offshore wind farms in the North Sea that will in due course provide Belgium with large volumes of renewable energy.

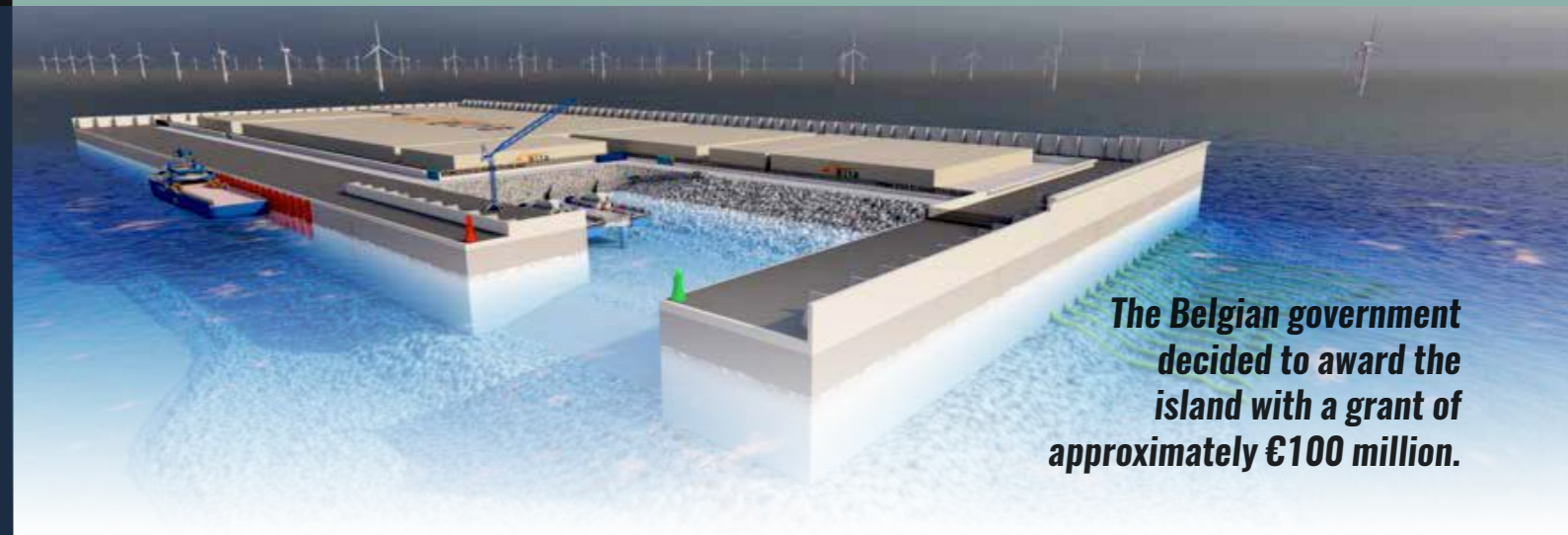
12 football pitches in size

The energy island will be located about 45 kilometres off the coast. The area set aside for the installation of the electrical infrastructure will be approximately 6 hectares in size, which is equivalent to about 12 football pitches. The artificial island will be located within the Princess Elisabeth wind zone and will be constructed from concrete caissons filled with sand.

A small harbour and helicopter platform will also be provided in order to allow maintenance crews to visit the island. The energy island has received funding from the European Covid Recovery Fund. The Belgian government decided to award the island with a grant of approximately €100 million.

Timing

Now that the construction contract has been awarded, the design of the island can be finalised. The construction of the island will start in early 2024 and will continue until August 2026. The caissons will be built and installed in 2024 and 2025. These will form the contours of the island. After that, the base of the island will be raised and prepared for the construction of the electrical infrastructure. It will be connected with the new offshore wind farms and with the Elia onshore grid. In order to deliver the additional electricity to consumers, it is crucial that the Ventilus and Boucle du Hainaut grid reinforcement projects are realised at the same time. Elia aims to ensure all wind farms are fully connected to the mainland by 2030.



The Belgian government decided to award the island with a grant of approximately €100 million.

“This project is a pioneering one for several reasons. It is the most cost-effective and reliable way to bring offshore wind to shore. It will be an island that provides options for the future. When we connect it to other countries, the Princess Elisabeth Island will become the first offshore energy hub. After our construction of the first hybrid interconnector in the Baltic Sea, the island is another world first. It solidifies Elia Group’s position as a company that is at the cutting edge of technology, which is necessary for the energy transition.”
- Chris Peeters, CEO Elia Group.

“As a company, we are proud to put our weight behind this project through which we, as a Belgian consortium, can support our country to achieve its climate objectives. Belgium is a front-runner in the field of offshore wind energy. We are making this clear once again by constructing this energy island. The combined experience of Jan De Nul and DEME as offshore specialists in dredging, rock armour and offshore energy is an absolute added value.”
- Julie De Nul, director Jan De Nul Group.

“We are looking forward to working together to achieve this technical tour de force. The construction of the world’s first artificial energy island reaffirms our country’s expertise in realising complex projects at sea. The focus for TM EDISON lies in qualitative execution that involves the lowest possible carbon footprint and the rising water level of the North Sea.”
- Luc Vandembulcke, CEO DEME Group.

“Belgium has been a pioneer in offshore wind power for 15 years and is once again demonstrating its expertise today through its first energy island - which is also a world first. Our offshore expertise is now recognised worldwide. By continuing to innovate, we are also strengthening our position for the future. We are giving our Belgian companies another chance to be true pioneers, both here and abroad. So we are once again highlighting our country on the world map.”
- Tinne Van der Straeten, Federal Minister of Energy.

“The North Sea will become the engine of our energy independence. The Princess Elisabeth Island will be an essential link in this. Our country has long been a pioneer in the field of offshore wind power with companies such as DEME and Jan De Nul, which are world

leaders. They are proving it once again with these plans for the world’s first energy island. It is thanks to their expertise and their role as global pioneers that we can accelerate the energy transition together.”
- Vincent Van Quickenborne, Federal Minister of Justice and the North Sea.

“With vision, ambition and good interactions between government and business, Belgium has established itself over the past 20 years as one of the world leaders in the development of offshore wind energy. Just as they did in the beginning, Belgian companies now have the opportunity to take the mead with regard to the next developments. The multifunctional energy island - which is being subsidised by €100 million under the Recovery and Resilience Plan - will be the first of its kind. The expertise acquired by DEME Group and Jan de Nul Group during its construction can be shared around the world to contribute to a lower carbon, more sustainable and more resilient economy as we combat climate change. Our knowledge and know-how constitute the Belgian export product par excellence.”
- Thomas Dermine, Secretary of State for Recovery.

TAQA NETHERLANDS PARTNERS WITH FUGRO

Completion of first uncrewed offshore integrity inspection

'This pilot project with Fugro showcases that drive and commitment by deploying best-in-class technologies that give higher quality pipeline data and improve safety and efficiency standards at our offshore sites.'

René Zwanepol, Netherlands Country Manager TAQA.



TAQA Netherlands is the first oil and gas operator in Europe to successfully complete an offshore integrity inspections campaign using an uncrewed surface vessel (USV) and electrical remotely operated vehicle (ROV).

The pilot project between TAQA and the developer of remote and autonomous survey solutions Fugro was an opportunity to trial the use of its new uncrewed Blue Essence vessel 'Fugro Orca' and the accompanying eROV 'Blue Volta' for underwater inspections. Both were controlled from a remote onshore operations centre.

The uncrewed integrity inspection of TAQA's offshore assets and pipelines in the Dutch North Sea resulted in 95% less CO₂-emissions given that it only needed 5% of the amount of fuel required compared to traditional methods.

These inspections are high-risk activities that would typically deploy around 70 people on board a vessel. However, by using this technology, the risk is significantly reduced.

It is projected that future use of uncrewed survey vessels could come with a cost saving for offshore operators in the order of 10% or more.

TAQA's Netherlands Country Manager René Zwanepol, commented: "TAQA continues to pursue top quartile operations performance in the oil and gas business, maintaining safety, operational performance and protecting the integrity of the assets and workforce. This pilot project with Fugro showcases that drive and commitment by deploying best-in-class technologies that give higher quality pipeline data and improve safety and efficiency standards at our offshore sites."

The inspection comprised a multibeam survey, depth of burial, visual inspection and cathodic protection assessment of pipelines between various offshore operated platforms.

Blue Essence vessel and eROV also performed remote structural inspections of selected platforms comprising visual inspection, cathodic protection assessment and a scour survey using multibeam.

Lex Veerhuis, Commercial Manager USV and Remote Working at Fugro, said: "TAQA and Fugro have had a long relationship regarding the use of innovation to make asset integrity services safer, more efficient and more sustainable. At the early stages of our USV development, it became clear that TAQA wanted to be the first in adopting this completely new way of working. Throughout this adoption process they have proven to be a strong partner and crucial to the success of this first project of its kind in Europe."

GREEN FINANCING

TenneT delivers EUR 4.5 billion in grid expansion projects



TenneT continued to perform very well in 2022 despite geopolitical changes and the resulting turbulent market environment as well as rising energy costs. This increased the grid stabilisation expenditure and caused the negative impact on IFRS earnings.

Manon van Beek, CEO TenneT: “Despite great pressure on security of electricity and energy supply, unprecedented volatility in energy markets, high gas and electricity prices, we have again delivered on our promise to provide a high grid availability of 99.9996% overall and nearly EUR 4.5 billion investments in projects to facilitate the energy transition.”

Over the next 10 years, TenneT’s annual investments are expected to grow to at least EUR 8 billion. From 2011 to 2022, TenneT invested well over EUR 30 billion in onshore and offshore electricity infrastructure in the Netherlands (EUR 9.4 billion) and Germany (EUR 21.1 billion).

Revenues increased from EUR 6,367 million in 2021 to EUR 9,840 million in 2022. With a growth of 23%, total asset volume in 2022 reached EUR 40,966 million. TenneT again reported solid financial results in 2022, with underlying EBIT increased to EUR 1,210 million in 2022 (2021: EUR 834 million).

Ambitions

With the Esbjerg Declaration in May 2022, new targets for North Sea offshore wind were set. It is the first intergovernmental agreement between Belgium, Denmark, Germany and the Netherlands envisaging up to 150 GW of offshore wind to be built until 2050, and 65 GW until 2030. In order to deliver on that target, TenneT will connect 40 GW of offshore wind energy capacity in the Netherlands and Germany by 2030.



Manon van Beek, CEO TenneT: "Since last year, we are facing a new energy world that requires a new ownership structure for TenneT allowing us to meet significantly increased capital requirements. At the same time, continued strong cooperation on energy remains crucial for the integration of European energy markets, accelerating the energy transition and ensuring security of supply."

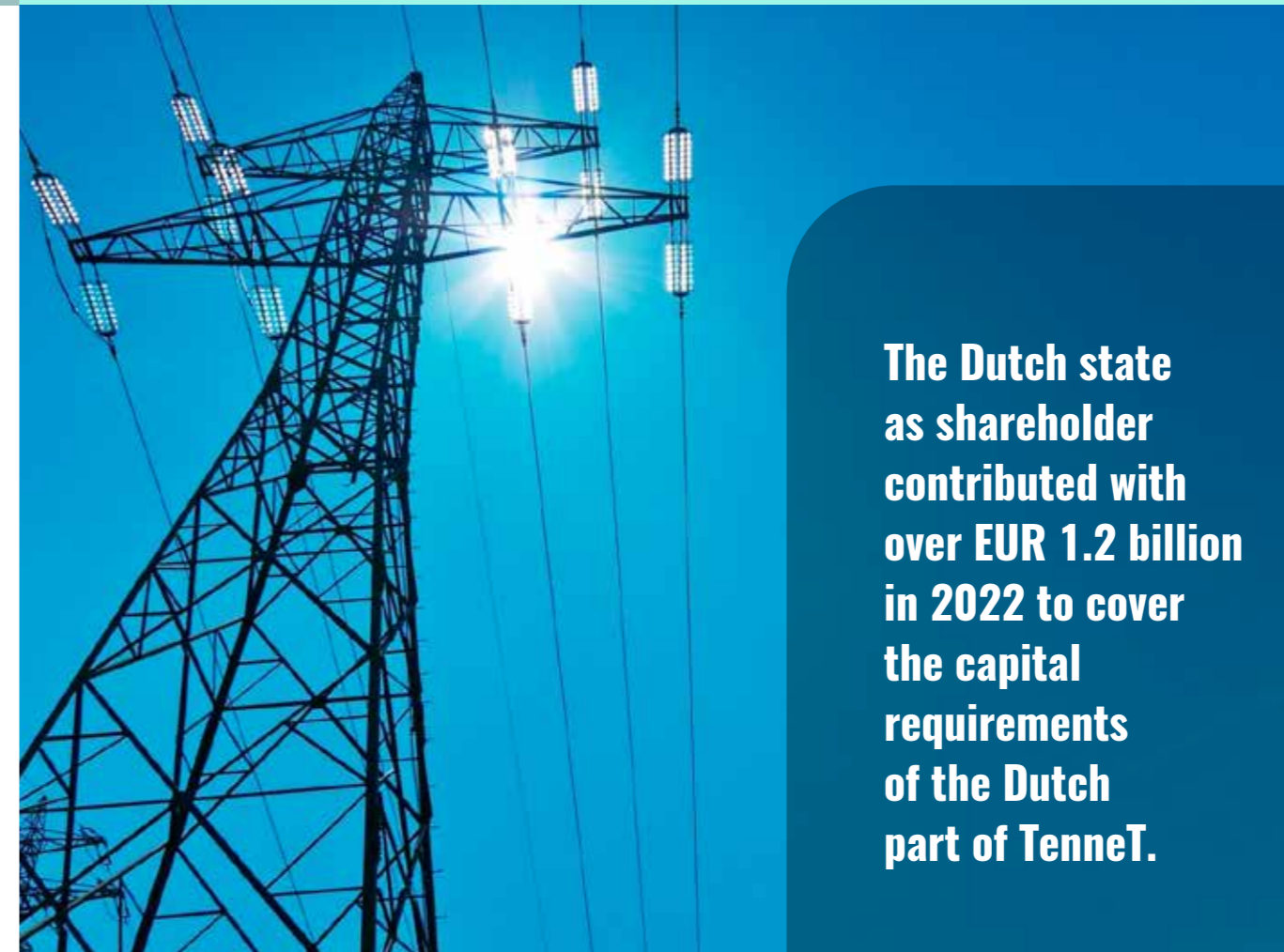
To meet these ambitions, TenneT has developed next generation of offshore grid connection systems with the two gigawatt direct current standard (2 GW HVDC, high voltage direct current). These connection systems allow larger wind farms to be connected and more electricity to be delivered than previous systems. Fewer platforms, cables and resources will also lead to less environmental impact.

TenneT launched large-scale tenders for these offshore grid connections with the new transmission capacity size in 2022. The 2 GW offshore converter platforms are hub-ready and are intended to be connected to a future meshed overlay DC grid. TenneT in 2022 also started to explore options for energy hubs at sea. These will not only connect wind farms to onshore grids, but also serve as connections between North Sea countries.

Green financing

In view of large investments, the company makes use of green financing in accessing capital markets and debt financing. In 2022, TenneT issued EUR 6.85 billion in Green Bonds and strengthened its status as the largest European corporate EUR Green Debt issuer, with currently approximately EUR 19.5 billion of debt outstanding across different formats (senior, hybrid, USPP and Schuldscheine) issued in the last 7 years.

The Dutch state as shareholder contributed with over EUR 1.2 billion in 2022 to cover the capital requirements of the Dutch part of TenneT. The equity requirement in the Netherlands will be around EUR 10 billion, in Germany around EUR 15 billion until 2032.



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2022 key accomplishments

In 2022 TenneT worked on hundreds of onshore and offshore projects. Most notably:

- Realisation of two new offshore grid connection systems for wind energy with a total capacity of 1,400 MW, Hollandse Kust Zuid alpha and beta and completion of the topside installation of DolWin6 (900 MW) and Hollandse Kust Noord (700 MW); both projects are planned to go in service in 2023.
- Onshore, TenneT delivered almost 320 kilometres (200 in Germany, 120 in the Netherlands) of new high voltage connections or lines with increased capacity. In addition, six new high voltage substations were built.
- TenneT started replacing 140 high-voltage substations in the Netherlands. This approximately ten-year Bay Replacement programme is based on an entirely new approach using modular, off-the-shelf, standardised modules, allowing this extensive task to be carried out much faster, more efficient and safer.
- Together with the other European TSOs, TenneT supported the integration of the Ukrainian electricity system by e.g., synchronizing both the Ukrainian and Moldovan high-voltage grids with the European system.

- Despite a very tight labour market, particularly for highly skilled technical staff, TenneT was able to expand its workforce by 777, bringing the total number of employees to 7,397. Given TenneT's anticipated further growth, the availability of talent remains a critical issue. Together with universities and dedicated campaigns, TenneT aims to attract more talented people.
- The annual analyses in Germany (the 'Sonderanalyse zur Stromversorgung Winter 2022/23') and the Netherlands assessing the grid's readiness to secure electricity supply for the 2022/2023 winter period was performed with extra intensity. TenneT - together with the three other German TSOs – conducted a special grid analysis which was adopted and implemented by the German government. In the Netherlands TenneT's winter analysis showed a reassuring picture in terms of security of electricity supply.

Annual results come on the eve of a new era for TenneT as the company and its shareholder, the Dutch state, are engaged in discussions with the German government to explore a full sale of TenneT's German activities to secure long term capital requirements on acceptable terms. Such a transaction embedded in a long-term bilateral energy cooperation would enable the creation of two strong national players closely and jointly cooperating in driving the energy transition.

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INTEGRATED SOV DESIGN OFFERING CAPABILITIES BEYOND THOSE AVAILABLE TODAY

NOV introduces Modular Service and Operations Vessel concept

As wind farms move farther offshore and in deeper waters, robust operations and maintenance strategies are required. Support vessels must be able to operate safely, effectively, and longer in increasingly challenging environments.



The Modular Service and Operations Vessel (MSOV) is a novel and versatile concept to optimize offshore wind farm operations and maintenance. The MSOV concept is a collaboration across NOV's Marine and Construction business unit. To introduce the concept, an MSOV design was developed based on GustoMSC's Enhydra MSOV design. Our vessel design offers an extensive and flexible deck layout to integrate mission equipment from our Lifting and Handling group and Remacut to maximize capability, workability and endurance.

The Enhydra series design characteristics resemble the sea otter's (Enhydra) unique and physical behavioural features. The sea otter is the sole marine mammal to use tools and it uses its streamlined body design to efficiently perform deep dives to the seafloor and adapt its lung capacity to float effectively on the surface.

At 140 m in length, the Enhydra MSOV's larger design allows for additional capabilities by integrating additional modular equipment, increased comfort, and capabilities beyond current construction/service operations vessels. Featuring Remacut cable-lay equipment, this versatile workhorse is designed for cable repair and change-out, subsea inspection and intervention, and mooring installation for floating wind farms.

With the Enhydra series, we are delivering the next evolution of offshore wind support vessels. The Enhydra MSOV will allow wind operators to use the modular capabilities to manage even unplanned operations. The increased workability and versatility of the Enhydra MSOV will provide a cost-effective year-round working platform covering the life cycle of the wind farm.



JIP OFFSHORE WIND FARM CERTIFICATION

Certification process of installation aids for offshore wind farms

DNV, the independent energy expert and assurance provider, is launching a Joint Industry Project (JIP) to develop a decision tool and reference that can be used by all stakeholders during the specification; design, manufacture, procurement and approval of any equipment intended for the installation and decommissioning of bottom-fixed wind turbines.

DNV forecasts that wind energy capacity will expand 15-fold, rising from 5% of global electricity production currently to 33% in 2050. With higher and more-reliable wind speeds, and less constraints on hub heights and site locations, offshore wind will continue to show a 14% average annual growth, and bottom-fixed offshore wind power will constitute 11% of the global grid-connected electricity supply by 2050.

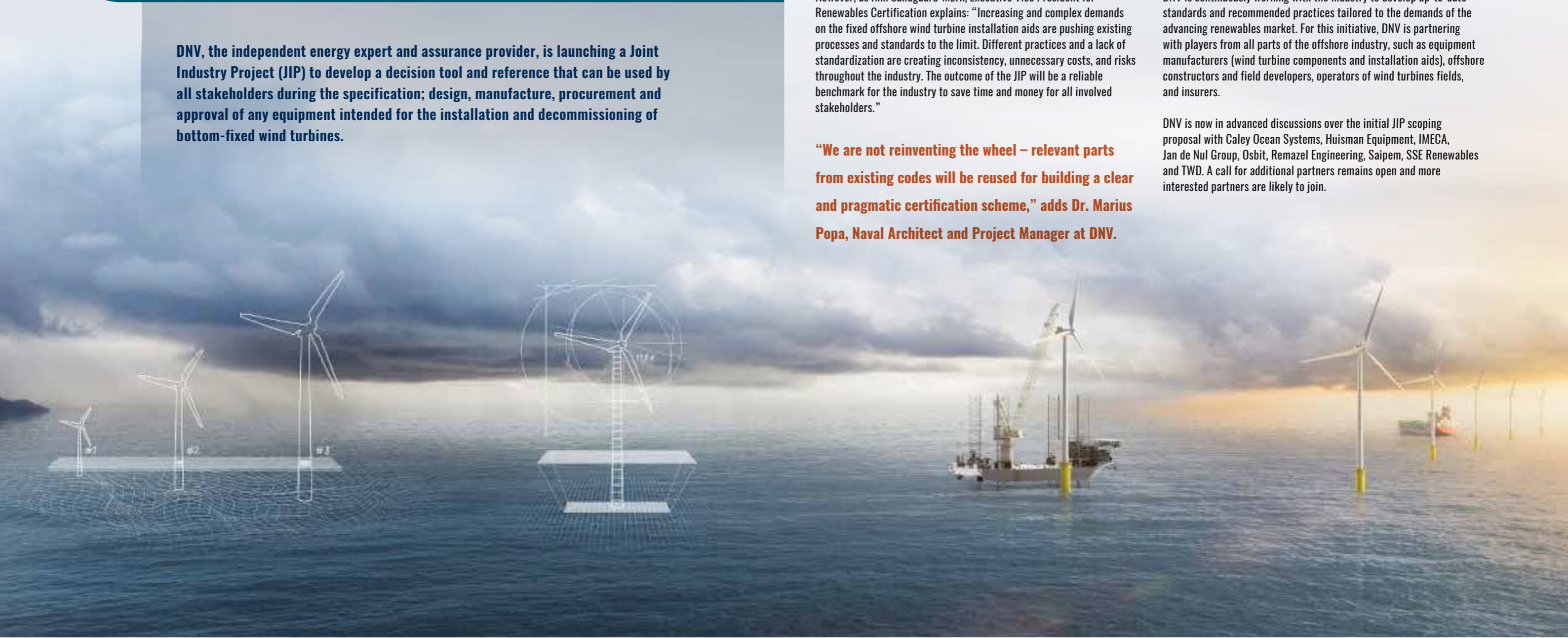
However, as Kim Sandgaard-Mørk, Executive Vice President for Renewables Certification explains: “Increasing and complex demands on the fixed offshore wind turbine installation aids are pushing existing processes and standards to the limit. Different practices and a lack of standardization are creating inconsistency, unnecessary costs, and risks throughout the industry. The outcome of the JIP will be a reliable benchmark for the industry to save time and money for all involved stakeholders.”

“We are not reinventing the wheel – relevant parts from existing codes will be reused for building a clear and pragmatic certification scheme,” adds Dr. Marius Popa, Naval Architect and Project Manager at DNV.

“We shall identify potential gaps and incorporate proper solutions for closing them in the outcome of the JIP. The development of a unified, technology-agnostic approach will ensure consistency across the supply chain without excluding customization, such that any user can refer to internal standards during their decision-making process, without deviating from the industry standard.”

DNV is continuously working with the industry to develop up-to-date standards and recommended practices tailored to the demands of the advancing renewables market. For this initiative, DNV is partnering with players from all parts of the offshore industry, such as equipment manufacturers (wind turbine components and installation aids), offshore constructors and field developers, operators of wind turbines fields, and insurers.

DNV is now in advanced discussions over the initial JIP scoping proposal with Caley Ocean Systems, Huisman Equipment, IMECA, Jan de Nul Group, Osbit, Remazel Engineering, Saipem, SSE Renewables and TWD. A call for additional partners remains open and more interested partners are likely to join.



DAMEN NOW OFFERS COMPLETE CONSTRUCTION SERVICE

Aker Solutions selects Damen for construction of two HVDC projects



Damen Shipyards Group is leveraging its resources and shipbuilding expertise to become a major force in offshore construction. It sees exciting opportunities in offshore wind, in particular the emerging floating wind sector, but also recognises the potential in other segments of the offshore energy sector and aquaculture.



HVDC topside under construction at Mangalia, Romania.

Damen is now offering a complete construction service including delivery, working to clients' designs and providing fabrication engineering expertise.

Damen Shipyards Mangalia (DSMa), Romania, the group's largest facility, will play a significant role. Capable of handling very large structures, it is also equipped with a semi-automated panel line, modern blasting and painting cells, a 1,000 tonne gantry crane and other equipment that make it highly efficient operationally, as well as economically.

The company is currently delivering two HVDC (High-Voltage Direct Current) offshore transmission projects at DSMa, both of which are being constructed under contracts with Aker Solutions as the main EPCI contractor. Work began last year and, with assembly and outfitting commenced, the first is due for delivery in the first half of 2023 and the second will be delivered in Q1 2024. Once complete, the HVDC topsides will set sail for Aker Solutions' yard in Stord, Norway, where the HVDC equipment will be installed and commissioned before they depart for their final destinations.

Damen is undertaking the structural fabrication, surface protection, outfitting including insulation, lighting, ducting, local cabling and more, as well as the fabrication of the transport grillages. The structural design by Aker Solution incorporates construction friendly design principles, which enables an efficient fabrication process when combined with the facilities available at DSMa.

Arne Engevik, HVDC director at Aker Solutions, said: "Damen Shipyards Group is a key partner for us in offshore wind. Their facilities are well suited for fabricating these types of structures, and the company shares our passion for delivering large, complex projects safely and sustainably. We have built a very strong relationship with the company over the past years and consider Damen as an integral part in successfully delivering our HVDC portfolio."

Wouter Henstra, Commercial Manager Damen Offshore Construction, added: "We are very pleased that Aker Solutions, a leading supplier of integrated solutions, products and services to the global energy industry, has chosen Damen Shipyards for these projects. We are confident that the HVDC topsides will fulfil their roles for many years to come and we are delighted to be expanding the contribution that we already make to the roll-out of much-needed offshore wind generation capacity."



Artist impression of HVDC topside. Copyright Aker Solutions.

EFFICIENT USE OF SPACE

Digital twin helps Port Esbjerg triple its wind capacity



The digital twin is a dynamic, virtual representation of the port, updated from real time data and using simulation, machine learning and reasoning to help decision making at Port Esbjerg.

Esbjerg has become the first wind port in the world to commission a so-called digital twin that can calculate efficient methods for deploying offshore wind installations. The effect of the calculations is dramatic: the port can triple its annual shipping capacity for offshore wind installations from 1.5 GW to 4.5 GW within three years. “These are big numbers. This means that we can increase the pace of the green transition because we use the space we have more efficiently,” says Port Esbjerg CEO Dennis Jul Pedersen.

The employees at the port will no longer have to spend time working that out, because a so-called digital twin of the port has calculated this down to the smallest detail. “We’ve already simulated everything down to the smallest detail,” as Jul Pedersen puts it.

Optimal locations

In addition to optimising the use of space at the port, the digital tool has also established optimal locations for storing wind turbine components and calculated that a deeper basin is needed in a few places, a few extra access routes and other practical solutions. All of this will help ensure that in three years’ time, Port Esbjerg will be able to ship 4.5 GW of offshore wind capacity in a year. This is a threefold increase compared to the 1.5 GW that has been possible until now.

How much space does a turbine blade actually require when it is stored at the port? How much space is needed for eighty blades? Or eighty nacelles? And where should they be stored at the port to ensure the most time-efficient loading of the installation vessel?.

“It may sound strange, but we’re not actually surprised by the results. Working with a digital twin is relatively new in port operations, but we’ve seen such great results already in RoRo and container cargo that we expected something similar when we started this project,” Jul Pedersen explains.

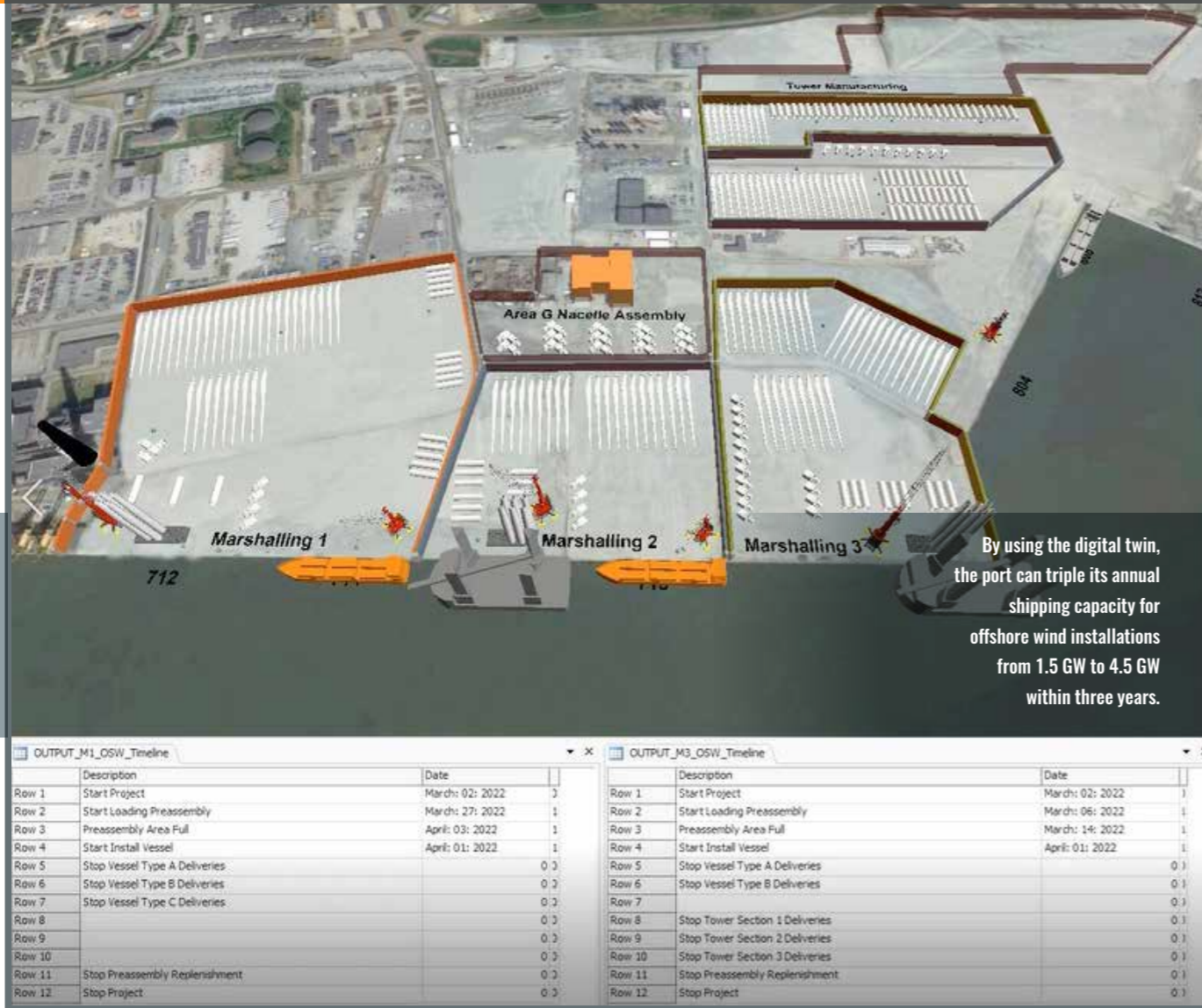
Artificial intelligence

The digital twin is a computer program, which is fed vast amounts of data on everything from upland storage space and berth characteristics to the port’s experience with shipping offshore wind installations gathered over the past twenty years. Then, the program runs modelling simulations with variables on everything from on and offloading times to weather induced down times.

Before the digital twin was developed, booking a project typically involved an educated guess at space requirements. The smartest location of cargo in relation to ships was not worked out in detail. In the future, all that will be worked out carefully.

“Twenty seconds saved here and there all adds up. A project like this is made up of many such actions,” says Jul Pedersen.

When shipping and staging offshore wind components, the optimal design of the process at the port is extra important, because it can be more complex than other port processes. Many activities are going on at the same time. For example, different ships come from different countries bringing specialist equipment. This adds extra pieces to an already complicated puzzle and it is costly to make mistakes. Installation ships cost upwards of USD 300,000 a day.



Improving port’s competitiveness

Tripling its capacity gives Port Esbjerg a competitive edge. “Efficiency is a competitive parameter. On account of the digital twin, we’re already booking in many more projects for the coming period, because we’ll have room for more,” says Jul Pedersen.

He makes the point that they have experienced overbooking space at the port for one project, while turning down another due to lack of space. “It’s tremendously frustrating. And we’ve also experienced the opposite: that we didn’t have enough space for a project that was already booked in. However, with the digital twin, problems like these are a thing of the past,” says Jul Pedersen.

Capacity shortage

One of the main challenges of the green transition is capacity problems, not least at wind ports in Europe. With the Esbjerg Declaration of 2022, it was agreed to deliver at least 65 GW offshore wind by 2030 and at least 150

GW by 2050. To achieve these targets, the pace of deploying offshore wind installations must be stepped up significantly.

“Working with a digital twin is a gamechanger. We’re able to make much better decisions using that tool. When it comes to port capacity and offshore wind, we need to pull the ports out of our spreadsheets and create more digital twins instead,” says Jul Pedersen.

The capacity at Esbjerg will steadily increase from 1.5 GW to 4.5 GW by 2025, when the required changes will have been completed.

“And it’s one thing what we can implement as a port. Just think what we can achieve when we get suppliers and other ports entered into our digital twin. With nacelles from Cuxhaven and blades from Hull,” says Jul Pedersen. He is therefore particularly looking forward to meeting with representatives of the other major wind ports in Esbjerg on 18 January, when he will share Port Esbjerg’s preliminary experiences of using the digital twin. “



After all, the potential is enormous. If all wind ports did what we’re doing, the rest of Europe already in the short term can more than triple the capacity without expanding the ports by a single square meter.”

Engineering consultancy

The US company Moffatt & Nichol developed the digital twin for Port Esbjerg. It is the world’s premier ports & maritime engineering consultancy, entrusted with planning and designing ports all over the world. They have a division dedicated to the planning, logistics modelling and detailed design of ports to support the offshore wind industry in Europe and the US.

“Developing the digital twin was challenging and required significant effort, however it has proven to be a very rewarding and worthwhile exercise. The ability to digitally build out the port and physically see the project happening and identify issues and efficiencies prior to significant capital expenditure provides a tremendously powerful tool for the offshore wind port industry. We can run what-if scenarios and optimize a port to ensure an

efficient operation and maximum throughput,” tells Joshua Singer.

Singer is an offshore wind port planner and marine structural engineer with twenty-two years of experience, who has been working with wind installations for the past eight years, and he was the project manager on the development of the digital twin.

According to Singer, it was no coincidence that Esbjerg became the first port in the world to have a digital twin to calculate the port processes in deploying offshore wind components.

“We also work with wind ports in the United States, but Esbjerg’s Dennis Jul Pedersen saw the possibilities and he pushed for it. Then we met, and Esbjerg is a giant in the field, so we decided to collaborate to make the world’s first model for deploying wind installations,” says Singer.

He explains that the application is a dynamic simulation model of the port, used to test the processes taking place at Esbjerg. How is a turbine blade moved? It is tested in many different ways to ensure that all the processes are made as smart as possible. The simulations also allow for RoRo and onshore wind, container and bulk projects that take place at the port at the same time. The helps ensure that other existing port operations are not downgraded due to increased offshore wind activities.

The program must also take into account that wind turbine components need to be close to the sea, wind terminals must be close to each other and need to be adjustable up and down in size.

As wind farm components are increasing in size, the need for careful planning becomes even greater.

“Esbjerg was good at optimising before, but the entire logistics chain is challenged by the giant components of offshore wind. As the components grow in size, the land based supply chains will shrink and the vast majority of components will be transported on the water. How do we coordinate so the timing is optimal for cranes, ships and so on? What if we move this vessel over here, then what? Well, that didn’t work. It’s a huge puzzle, and if you’re trying to work it out on a piece of paper or in Excel, you just can’t wrap your head around it,” according to Singer.

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KEYNOTE SPEAKERS



H.E. Chandrikapersad Santokhi
President
Republic of Suriname



H.E. Albert R. Ramdin
Minister of Foreign Affairs, International Business and International Cooperation
Republic of Suriname



H.E. David Abiamfo
Minister of Natural Resources
Republic of Suriname



Annand Jagesar
Managing Director/CEO
Staatsolie Maatschappij Suriname N.V.



David Mendelson
Senior Vice President Americas for Exploration & Production
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US OFFSHORE WIND MARKET



Significant growth in 2023

The US offshore wind market is expected to grow significantly in 2023 and beyond, driven by favourable government policies and increasing demand for clean, renewable energy.

According to recent reports, the US is expected to install over 15 GW of offshore wind capacity by 2023, representing a significant increase from the current installed capacity of around 3 GW. This growth is driven by a combination of factors, including the declining cost of offshore wind energy, state-level renewable energy targets, and the need to decarbonize the electricity sector.

Several states, including Massachusetts, New York, and New Jersey, have set ambitious targets for offshore wind energy and are investing heavily in the development of offshore wind farms. In addition, the US federal government has set a target to install 30 GW of offshore wind energy

by 2030, which is expected to provide a boost to the industry and create new jobs.

The growth of the US offshore wind market is expected to bring significant economic benefits, including the creation of new jobs, the stimulation of local economies, and the development of a new supply chain for wind energy components.

Overall, the outlook for the US offshore wind market in 2023 is positive, and the industry is expected to continue its growth trajectory in the coming years as demand for clean, renewable energy continues to increase.

DUTCH AND GERMAN NORTH SEA IN 2022

29 terawatt hours of wind yield



Transmission system operator TenneT transmitted around 21.13 terawatt hours (TWh) of wind energy from the German North Sea to land in 2022. In the Netherlands, 7.91 TWh were fed into the grid. In purely arithmetical terms, this means that the annual demand of around nine million households can be covered with green energy (at 3250 kWh annual consumption/household).

In Germany, the annual result in 2022 is four percent above the previous year's value: in 2021 it was 20.3 TWh. Total onshore and offshore wind power generation in Germany reached 125.28 TWh in 2022 (previous year 114.37 TWh). The share of North Sea electricity in 2022 was around 16.9 percent, just under one percentage point below the previous year (17.8 percent).

The capacity of offshore wind farms in the Dutch North Sea was 3220 MW on the reporting date of 31.12.2022. In the Netherlands, the transmission capacity of TenneT's offshore grid connections amounts to 3757 MW (previous year 1503 MW). These transmitted 7.91 TWh in 2022 (previous year 4.71 TWh).

The strong increase compared to the previous year is mainly due to the commissioning of TenneT's offshore grid connection systems Hollands Kust (zuid) Alpha and Beta as well as corresponding additions to the offshore wind farms in 2022. The onshore wind energy capacity in the Netherlands was 7303 MW in 2022, generating 5.14 TWh of wind energy.

TenneT COO Tim Meyerjürgens said: "The North Sea has been reliably and stably supplying a large share of wind power in the Netherlands and Germany for years. It is therefore right and important to tap the potential of the North Sea as a wind power source for the Netherlands, Germany and Europe even better in the future. TenneT now provides a total of more than ten gigawatts of grid connection capacity in the Dutch and German North Sea. In order to achieve the ambitious climate policy goals, everyone must pull together and work in partnership. It is essential to think of the energy transition in European terms, to stimulate the market accordingly and to set important incentives by politicians, as well as in the industry itself. TenneT is leading the way here, for example with the large-scale tenders launched last year for the future offshore grid connections with the new transmission capacity size of two gigawatts per system."

In the German North Sea, the maximum value of feed-in capacity from offshore wind farms in 2022 was measured at 6255 megawatts (MW) on 22 November. The capacity expansion of offshore wind farms in the German North Sea was 7036 MW on the reporting date of 31 December 2022, 357 MW higher than in the previous year (6679 MW). TenneT's offshore transmission capacity is 7132 MW in the German North Sea.

Wind turbines in the Baltic Sea (50Hertz grid area) generated 3.62 terawatt hours in 2022 (previous year 3.7 TWh), so Germany's total offshore generation in this period was 24.75 terawatt hours (of which North Sea 21.13 TWh).

Adding 100.53 terawatt hours of onshore wind energy generated, the total yield in Germany comes to 125.28 terawatt hours (previous year 88.5 TWh).

Area development plan 2023

In accordance with the previous specifications of the Network Development Plan (NEP) and the Area Development Plan (FEP), TenneT began planning and implementing the BalWin1 (NOR-9-1), BalWin2 (NOR-10-1) and BalWin3 (NOR-9-2) projects in Germany as early as 2020. In the meantime, the expansion targets for offshore wind energy have been significantly increased by the German government to at least 30 gigawatts in 2030 and at least 40 gigawatts in 2035. The revised expansion targets for offshore wind energy were taken into account in the update of the FEP carried out in 2022.

The Federal Maritime and Hydrographic Agency has now published the final FEP 2023. In this, the project sponsorship of the TenneT projects BalWin1 and BalWin2 was transferred to Amprion in agreement with the Federal Network Agency and at the same time assigned to other onshore grid connection points than previously. This change was already apparent in the first drafts of the FEP, so that TenneT took this into account in advance and began planning the further offshore grid connections required to achieve the new expansion targets for offshore wind energy.

The changed project allocation and the additional offshore grid connections will also be reflected in the 1st draft of the NDP 2037/2045 (2023) expected in March 2023.

In addition to the four 900 MW offshore projects currently under construction, TenneT is thus also responsible for the realisation of the following six new offshore grid connections, each with a transmission capacity of two gigawatts, by 2031:

- BalWin3 (NOR-9-2) with Wilhelmshaven grid connection point2
- BalWin4 (NOR-9-3) with grid connection point Unterweser
- LanWin1 (NOR-12-1) with Unterweser grid connection point
- LanWin2 (NOR-12-2) with grid connection point in the Heide area
- LanWin4 (NOR-11-2) with grid connection point Wilhelmshaven2
- LanWin5 (NOR-13-1) with grid connection point at the NordWest hub (Westerstede, Wiefelstede, Rastede, Ovelgönne area).

With the confirmation of the NEP 2037/2045 (2023), the project sponsorship for further offshore grid connections to be realised with completion from 2032 is expected.

EXPERTS TRAIN CLIENTS' TECHNICIANS AND SITE ENGINEERS

Strohm launches Field Service Group



FSG lead Gavin Leiper and his deputy Natan Kramer.

Strohm, the world's first and leading producer of Thermoplastic Composite Pipe (TCP), has launched the Field Service Group (FSG), following contract wins worth in excess of EUR 30 million after supplying more than 70 jumpers under its Jumper on Demand model.

The core of the FSG consists of technicians and engineers from the company's pipe completions, testing and project engineering departments, which are responsible for the pipes' end fitting termination process as well as the final testing. The specialists are trained in pipe handling, rigging, and lifting, as well as the use of pneumatic and electrical installation aid tooling systems.

Under the Jumper on Demand concept and delivery method, the TCP is supplied in a continuous length on a reel, which is stored at the client's desired location. The individual jumpers are then cut to the desired length, terminated, and tested in the field. In this way the concept provides maximum flexibility to the end-user, allowing operators to take full advantage of economies of scale, control the schedule, and mitigate project risk. This is also used for emergency situations as it quicker and more flexible than traditional methods.

Having a length of TCP readily available near site reduces schedule risks and cost. Clients can take advantage of a single pre-agreed continuous design shipped on a reel that can be spooled off to the required length, when and as required. The end fittings are shipped separately, ready to be terminated onsite at short notice.

Strohm's experts can train the clients' technicians and site engineers on all aspects of the work from cutting of the pipe, liner machining, coating repair, and end fitting installation.

Gavin Leiper, VP Africa/Americas and Field Services Group lead at Strohm said: "The FSG was created following an increase in Jumper on Demand project awards, which included overseas termination and installation. We discovered a need in the market for a focused group of highly experienced and trained experts solely dedicated to supporting these projects and training our clients where necessary."

"Our clients are pleased to have the peace of mind of dedicated specialists supporting their projects and the short timelines between jumper fabrication and installation mean that the whole process is faster and cheaper. While this model is mainly focused on jumpers, we can, and have, terminated flowlines and risers on site as well, so there's potential to expand the remit of the FSG in the future."

Its TCP is manufactured at the company's 24/7 production facility in the Netherlands.

CRANES VULNERABLE TO WEAR AND TEAR

Mounting construction activities to push demand for crane aftermarket services

Cranes having made o-Operations at industrial and construction sites have now become highly convenient and effective. The equipment is deemed to be one of the most important machineries in use at construction and industrial sites while facilitating the movement of goods to and from various locations. While the building and construction sector remains a niche industry for cranes, they also find extensive applications across civil aviation, marine, mining, and other industries.

Considering the wide scale utilization across umpteen construction projects worldwide, cranes are vulnerable to wear and tear. This calls for better servicing or replacement plans as a breakdown can occur at any time, impelling the need for **crane aftermarket** parts and services. In lieu of this, various crane makers have relentlessly been working towards the enhancement of these services while engaging in partnerships, collaborations, acquisitions, product launches, or facility expansions.

To illustrate, in 2021, Manitowoc Company announced entering a definitive pact to take over the crane business of H&E Equipment Services, under a transaction deal worth USD 130 million. The latest acquisition would enable Manitowoc to expand its ability to offer rentals, used sales, new sales, and aftermarket parts and services to a variety of end-market clients.

Automation in cranes is a pivotal trend that is bolstering the market space of late, enabling various companies to work in the direction to deliver novel solutions to their clients in the construction sector. A testament to the aforesaid is offered by Emirates Global Aluminum. In July 2022, EGA announced installing multi-functional, highly automated overhead cranes in Jebel Ali, in a move toward full automation of cranes for securing operations and reduction

of cell tending. Besides, the increased automation capabilities would enhance safety, reliability, and efficiency.

Construction sector: a pivotal vertical for crane aftermarket services

'Overall spending on residential construction in the United States was more than 850,000 million dollars as of December 2022.' - US Census Bureau

As the world is progressing towards urbanization, regions across the globe are witnessing a rapid residential and commercial expansion of late. Transforming demographics and the pressing need for the development of high-rise buildings.

Given the rate of infrastructural expansion over the years, the demand for tower crane services and parts has been soaring to new heights. Tower cranes are considered basic modern construction equipment that is required across various construction projects and sites. These cranes address myriad complexities associated with the replacement and repair of OEM parts and a dearth of awareness pertaining to aftermarket products and services might affect the industry expansion up to a certain extent.

The rising construction projects worldwide would further spur demand for tower cranes. In 2022, Sri Lanka-based heavy cargo and logistics company, Advantis Project Logistics announced expanding its portfolio with the addition of five tower cranes. As per reports, these tower cranes have been used to work on major infrastructure projects including the country's Bandaranaike International Airport expansion project.

Considering the residential construction, it should be noted that Middle Eastern countries, specifically the United Arab Emirates, are likely to emerge as the hub for tower crane services and replacement parts given their ability to support the construction of the city's many skyscrapers and high-rise buildings. In fact, according to the American National Standards Institute, Dubai has more active tower cranes than any other city, with some estimates pointing the share to be around 25%.

Inflation: A major 'blow' to the crane aftermarket

'The construction sector inflation hit 9.5% in June 2022 and 6% over the year to December 2022.'

Inflation is one of the biggest challenges for the construction industry. The sector has also been bearing the brunt of higher transportation and logistics costs while increasing building material prices, machinery hiring rates, and other inputs to construction projects. These factors have further negatively influenced the demand and sales for various construction equipment replacement parts. This is expected to pressurize the overall crane aftermarket outlook over the ensuing years.

Key takeaway and futuristic opportunities

Rapid industrialization in the 21st century has led to a massive surge in construction activities, including infrastructural developments across commercial, residential, and industrial sectors. As the demand for cranes is slated to expand exponentially, various crane companies are projected to foresee a surge in the need for replacement parts and other aftermarket services.

Through 2032, the mining industry would emerge as a profitable avenue for crane aftermarket, given the burgeoning excavation activities and increasing metal demand worldwide. Statistics by the National Mining Association reveal that every American, on average, uses nearly about 40,000 pounds of newly mined materials and 3.4 tons of coal each year.



Biography Author

Vinisha Joshi

A qualified Engineering graduate, Vinisha Joshi takes pride in playing with words. Presently, she pens down insightful articles on business, core industry, technology, and the like. Creativity comes naturally to her, and Vinisha makes sure to effectively combine the same with her technical expertise in the articles she writes.

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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:

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SAVE THE DATE: OTC NETWERKRECEPTIE 1 MEI

Op de eerste dag van de OTC zal op maandag 1 mei van 18.00-20.00 uur de traditionele netwerkreceptie plaatsvinden in het Museum of Fine Arts in Houston.

De receptie wordt georganiseerd door de Nederlandse Ambassade en IRO. Houd de datum vast vrij in je agenda en check de online calendar voor aanmelden!

OFFSHORE ENERGY EXHIBITION & CONFERENCE 2023

Op 28 en 29 november komt onze sector samen tijdens Offshore Energy Exhibition & Conference (OEEC) in RAI Amsterdam. De economie en menselijke interactie zijn onlosmakelijk met elkaar verbonden. OEEC kan daarom niet wachten om te doen waar het goed in is; het bieden van een plek waar mensen elkaar ontmoeten, zaken doen en kennis delen.

OEEC is het event voor bedrijven die zich richten op toekomstbestendige zakelijke kansen voor de offshore energie-industrie. Het conferentieprogramma biedt unieke inzichten in de nieuwste ontwikkelingen in een snel veranderende wereld.

Daarnaast wordt het event gesteund door de Nederlandse Overheid, die OEEC beschouwt als hét flagship evenement voor de energiesector. Dit jaar zal de Rijksdienst voor Ondernemend Nederland een sterke aanwezigheid hebben tijdens het evenement. IRO zal aanwezig zijn met een stand.



TERUGBLIK IRO LEDENBIJENKOMST BIJ BLUESTREAM OFFSHORE

Goed om weer in Den Helder te zijn geweest voor een drukbezochte, zeer interessante IRO LOL bijeenkomst bij [Bluestream Offshore](#) vrijdag 10 februari.

Bluestream Offshore heeft tijdens deze middag in korte tijd glashelder gemaakt waar zij mee bezig is en welke belangrijke rol niet alleen Bluestream maar onze hele Offshore toeleveringsindustrie speelt met betrekking tot de oplossingen rondom de energietransitie (en energiezekerheid!).

Lees [hier](#) de terugblik en bekijk de foto's in de [galerij](#).



IRO LID IN DE SCHIJNWERPERS: NIDEC NETHERLANDS

IRO heeft recentelijk Nidec Leroy-Somer als nieuw lid mogen verwelkomen. In een persoonlijk interview met Eric Haarman, maken wij kennis met Nidec Netherlands B.V.

Waar blinken jullie in uit?

Nidec produceert wereldwijd miljarden elektromotoren per jaar. Deze motoren zijn op vele plekken te vinden: in smartphones, de automobiel industrie, hybride voortstuwing van schepen, de HVAC markt, etc. De motoren van Leroy-Somer, onderdeel van Nidec, worden geproduceerd in Frankrijk en worden voornamelijk gebruikt voor de algemene industrie, de scheepvaart en de olie & gas industrie.

Wat trok jullie over de streep om lid te worden?

Voor Leroy-Somer is naamsbekendheid van groot belang. Een firma die al meer dan 100 jaar elektromotoren maakt, is wel gekend maar soms niet bekend als toeleverancier. Met de grote potentie aan IRO-leden werkzaam in de scheepvaart en olie & gas industrie komen we in contact met een groot potentieel afzetgebied.

Wat hebben jullie de andere leden te bieden?

Onze Leroy-Somer scheepvaartmotoren omvatten een complete range tot en met 1,5 MW. Voor de olie & gas industrie kunnen we onze ATEX motoren in IE3 klasse leveren en voor de algemene industrie hebben we zeer energiezuinige motoren met efficiency klasse conform IE4/IE5. Onze Dyne+ LSHRM is een energiezuinige motor met magneet- en reluctantie-techniek gecombineerd.

En erg belangrijk, naast deze producten staat er in Sliedrecht een team voor u klaar dat meedenkt om tot een beste oplossing te komen op het gebied van motoren en frequentieregelaars.

Ook hebben we in Frankrijk per marktsegment een gespecialiseerd team tot onze beschikking dat verstand heeft van de ontwikkelingen in uw branche.

Hoe draagt Nidec bij aan de energietransitie?

Leroy-Somer ontwikkelt voortuitlopend op de marktvraag en de snel veranderende eisen van de markt en heeft daardoor de beschikking over niet alleen IE3 en IE4 maar ook IE5 motoren. De motoren zijn nu en in de toekomst klaar voor gebruik en natuurlijk blijven wij de ontwikkelingen op het gebied van energiebesparing volgen.

De energietransitie is een noodzaak en daarom stimuleren wij het gebruik van energiebesparende motoren. Wij informeren onze klanten, voornamelijk system integrators en OEM bedrijven, om hun (eind)klant te wijzen op de mogelijkheden van energiesubsidie bij investering in energiebesparende bedrijfsmiddelen. De [Energie-investeringsaftrek](#) (EIA) voor Nederlandse eindgebruikers is hier een goed voorbeeld van. Het is de taak van de gebruiker deze EIA aan te vragen.

RAPPORT GASWINNING OP DE NOORDZEE

Gaswinning op de Noordzee

En de afspraken daarover in het Akkoord voor de Noordzee

Een belangrijke conclusie uit dit onlangs verschenen rapport over Gaswinning op de Noordzee is dat, in geval van aardgas uit bijvoorbeeld Rusland via pijplijntransport naar Nederland, en uit de USA via transport in de vorm van LNG, deze 'upstream'-emissies 5 maal (Rusland) tot 6 maal (USA) hoger liggen dan die van aardgas uit Nederland of Noorwegen.

JAARVERSLAG 2022

Het IRO jaarverslag 2022 nog niet gelezen? Je kunt 'm online lezen via onderstaande links. In het overzicht zie je de facts & figures en alle highlights van een bijzonder jaar. Neem snel een kijkje!

- [jaarverslag 2022](#)
- [annual report 2022](#)



IRO LID IN DE SCHIJNWERPERS: BREDENOORD



IRO heeft recentelijk Bredenoord als nieuw lid mogen verwelkomen. In een persoonlijk interview met Peter Rijkens, Area manager Bredenoord regio Noord West Nederland, maken wij kennis met Bredenoord.

Waar blinken jullie in uit?

Sinds 1937 is Bredenoord dé specialist in tijdelijke en mobiele stroomoplossingen. Overall ter wereld zorgen we ervoor dat ondernemers, instellingen en overheidsorganisaties kunnen werken zoals zij dat willen. Op een schone, efficiënte en verantwoorde manier. Met onze vloot van batterijsystemen, uiteenlopende aggregaten en toebehoren, en onze ervaren engineers, servicemonteurs, chauffeurs en adviseurs staan we 24/7 voor onze klanten klaar om te zorgen dat zij direct aan de slag kunnen.

Wat trok jullie over de streep om lid te worden?

Netwerken, pilots opzetten of gewoon sparren over nieuwe technieken en ideeën met andere bedrijven is voor ons belangrijk.

Wat hebben jullie de andere leden te bieden?

De toekomst zal steeds meer gaan bestaan uit emissievrije projecten. Geen uitstoot meer op de bouwplaats, in de infra en op evenementen. Hiervoor kijken wij bij Bredenoord verder dan de huidige beschikbare brandstoffen of zon- en windenergie, want alleen een focus op energieopslag is niet meer voldoende. Vaak werken we bij de ontwikkeling van nieuwe technieken en oplossingen voor duurzame energiezuikerheid samen met andere bedrijven, overheidsorganisaties en innovatiepartijen. Vandaar ook ons IRO lidmaatschap.

Hoe draagt Bredenoord bij aan de energietransitie?

Met onze R&D-afdeling werken we al jaren aan het zoveel mogelijk emissievrij maken van tijdelijke en mobiele stroom. Daarmee zorgen we dat onze klanten verzekerd zijn van stroom, ook als fossiele brandstoffen minder gewenst of beschikbaar zijn en er strenge (emissie)regels gelden. Van simpele effectieve oplossingen als een gepatenteerd roetfilter tot grotere uitdagingen als mobiele zonnepanelen. Zo was Bredenoord de eerste met een waterstoffaggregaat en was de ESaver de eerste mobiele batterijoplossing voor de kleinere stroomvraag. Op dit moment zijn we volop bezig met het experimenteren en inzetten van alternatieve brandstoffen als methanol en biogas. Daarnaast hebben we een uitgebreide vloot van batterijen in verschillende vermogens (van 15 tot 600 kW) die bij diverse klanten stand-alone of hybride ingezet worden. We investeren volop in het verduurzamen van onze vloot om ons steentje bij te dragen aan de energietransitie.

IRO LID IN DE SCHIJNWERPERS: VERMEULEN EUROPOORT



IRO heeft recentelijk Vermeulen Europort als nieuw lid mogen verwelkomen. In een persoonlijk interview met hun Sales Manager, Perry Pieëte, maken wij kennis met Vermeulen Europort.

Waar blinken jullie in uit?

Onze core business is het leveren en installeren van staalkabels en alle overige denkbare hef- en hijsmiddelen. Door onze inmiddels zeventig jaar aan ervaring, weten wij als geen ander hoe een staalkabel toegepast moet worden in iedere denkbare kraan. Of dit nu voor off- of onshore toepassingen gaat, wij komen wel met de oplossing.

Wat trok jullie over de streep om lid te worden?

Voornamelijk de grootte van de vijver waarin gevist kan worden. IRO biedt het ideale platform om in contact te komen met alle denkbare partijen in de offshore. Tevens zijn wij van mening dat wij waarde kunnen toevoegen binnen de community met onze kennis en kunde.

Wat hebben jullie de andere leden te bieden?

Wij zijn al zeer ruime tijd actief in de maritieme sector en hierdoor hebben we het meeste ook wel gezien en gedaan. Vermeulen Europort heeft een vaste groep medewerkers die al jarenlang aan het bedrijf verbonden zijn en zodoende de nodige kennis en ervaring in huis hebben. Wij merken dat de echt moeilijke technische vragen in sommige gevallen doelbewust bij ons worden neergelegd, aangezien de klanten weten dat wij met de juiste antwoorden of oplossingen komen. Prijs is dan niet altijd leidend, meer het juiste antwoord.

Hoe draagt Vermeulen Europort bij aan de energietransitie?

Veel van onze klanten hebben de komende jaren hun handen vol om mee te gaan in de veranderende wereld om ons heen en dan met name de energietransitie. Wij proberen ze bij te staan door mee te denken in hun lopende projecten en eventuele, meer duurzame, aanpassingen aan te dragen.



EUROPORT

Europort is al decennialang dé vakbeurs en ontmoetingsplaats waar de internationale maritieme industrie samenkomt om te netwerken, te verbinden en te innoveren.

Met een sterke focus op 'special purpose ships' is wereldhavenstad Rotterdam 4 dagen lang het trefpunt voor professionals werkzaam in de offshore, short sea, baggerij, binnenvaart, visserij, marine, superjachtbouw, cruise en ferries of workboats.

De volgende editie van Europort is van 7-10 november 2023 in Rotterdam Ahoy. |

IRO zal aanwezig zijn met een stand.



Maritieme, Arbeidsmarkt en Haven Monitor 2022

MARITIEME, ARBEIDSMARKT EN HAVEN MONITOR

Onlangs is in opdracht van het Ministerie van Infrastructuur en Waterstaat (IenW) en i.s.m. met Nederland Maritiem Land de gecombineerde Maritieme, Arbeidsmarkt en Haven Monitor gepubliceerd.

Hierin worden elk jaar de meest relevante economische en arbeidsmarktgegevens van het maritieme cluster, waaronder offshore (energie) in Nederland gepubliceerd.

Download [hier](#) de (samenvatting van) de monitor.

MARITIEM MASTERPLAN

Het Maritiem Masterplan is ingediend bij het Nationaal Groeifonds. Het doel van het Masterplan is om betrouwbare en concurrerende klimaatneutrale schepen te ontwikkelen, bouwen en gebruiken. Via deze [link](#) kun je een samenvatting van het plan lezen.

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

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CONPIPE

CONPIPE INTERNATIONAL WWW.CONPIPE.COM

CONPIPE mainly delivers carbon steel (lined and coated) pipe lines for transport of drinking water, cooling water, water disposals, fire water, chemicals and slurries.



HYET SOLAR WWW.HYETSOLAR.COM

HYET SOLAR ontwikkelt en produceert kosten efficiënte en hoogwaardige zonne-PV-modules (Powerfoil) die lichtgewicht en flexibel zijn. Het doel is om de kosten van zonne-energie drastisch te verlagen. De toepassingsmogelijkheden bestrijken een breed gebied, variërend van goedkope energiecentrales op utiliteitschaal tot geïntegreerde hoogwaardige architecturale oplossingen.



KERSTEN WWW.KERSTENGROUP.COM

KERSTEN is gespecialiseerd in de productie van gebogen staalconstructies. Op vier productielocaties wereldwijd produceren wij klantspecifieke offshore componenten zoals tubulars, piles, J-tubes, cones, etc.



ROYAL ROOS WWW.ROYALROOS.COM

ROYAL ROOS biedt engineering, kade- en opslagfaciliteit voor offshore (de)mobilisaties in Rotterdam. Inclusief walstroom om project CO2-uitstoot te minimaliseren. Schepen tot 225m lang, 30m breed, 40.000t.

BEURSGENOTEERD

NETWERKEN OP DE BEURSVLOER - NETHERLANDS PAVILIONS 2023

Klik op de links voor meer info over de beurzen, prijzen en aanmeldformulieren. Of neem contact op met Jeroen Tresfon via j.tresfon@iro.nl.

- [GOW LONDON](#), 14 - 15 JUNI (W&WW) – *deadline 24 maart*
- [SEOGS PARAMARIBO](#), 26 - 29 JUNI – *deadline 24 maart*
- [OE ABERDEEN](#), 5 - 8 SEPTEMBER – *deadline 24 maart*
- [OGA KUALA LUMPUR](#), 12 - 14 SEPTEMBER – *deadline 24 maart*
- [ADIPEC ABU DHABI](#), 2 - 5 OKTOBER – *deadline 24 maart*
- [OEEC AMSTERDAM](#), 28 - 29 NOVEMBER
- [EUROPORT ROTTERDAM](#), 7 - 10 NOVEMBER

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



1-DAAGSE CURSUS 'OFFSHORE ENERGIE: VAN FOSSIEL NAAR DUURZAME ENERGIE', 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: €625,- 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 2022:
• 31 mei • 20 september • 13 december

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

(foto: Marco de Swart)

IRO KALENDER BEURZEN, MISSIES, CURSUSSEN EN BIJENKOMSTEN 2023

30 MAART	CEDA-NL/IRO EVENT: ENERGY HUBS ALBLASSERDAM
31 MAART	YOUNG IRO AND CRITICAL MINDS PRESENTS: "MOVING WITH THE TIMES!" KAMERIK
4 APRIL	ONLINE SEMINAR GREEN PORTS PARTNERSHIP BRAZIL ONLINE
12 APRIL	LEDEN ONTMOETEN LEDENBIJENKOMST BIJ GOUDA HOLLAND MOORDRECHT
25 - 27 APRIL	WINDEUROPE ANNUAL EVENT COPENHAGEN (DUTCH VILLAGE) KOPENHAGEN, DENEMARKEN
1 MEI	OTC RECEPTIE HOUSTON, VS
1 - 4 MEI	OTC HOUSTON HOUSTON, VS
16 MEI	INTERNATIONAL RELATIONS & COMMUNICATIONS COMMITTEE N.T.B.
25 MEI	BESTUURSVERGADERING DELFT
31 MEI	CURSUS OFFSHORE ENERGY: VAN FOSSIEL NAAR DUURZAME ENERGIE ROTTERDAM
14 - 15 JUNI	GLOBAL OFFSHORE WIND LONDEN, VK
15 JUNI	OFFSHORE DAY – KORTING VOOR IRO LEDEN ANTWERPEN
19 - 22 JUNI	SEOGS PARAMARIBO, SURINAME
22 JUNI	LEDEN ONTMOETEN LEDENBIJENKOMST BIJ NSECURE BARENDRECHT
5 - 8 SEPTEMBER	OFFSHORE EUROPE ABERDEEN, SCHOTLAND
13 - 15 SEPTEMBER	OGA KUALA LUMPUR, MALEISIË
20 SEPTEMBER	CURSUS OFFSHORE ENERGY: VAN FOSSIEL NAAR DUURZAME ENERGIE ROTTERDAM
22 SEPTEMBER	BESTUURSVERGADERING N.T.B.
2 - 5 OKTOBER	ADIPEC ABU DHABI
19 OKTOBER	ALGEMENE LEDENVERGADERING SCHIEDAM
25 - 26 OKTOBER	OCEAN ENERGY EUROPE CONFERENCE & EXHIBITION (OEE2023) DEN HAAG
7 - 10 NOVEMBER	EUROPORT ROTTERDAM
28 - 29 NOVEMBER	OFFSHORE ENERGY AMSTERDAM
7 DECEMBER	BESTUURSVERGADERING N.T.B.
13 DECEMBER	CURSUS OFFSHORE ENERGY: VAN FOSSIEL NAA DUURZAME ENERGIE ROTTERDAM

VOOR DE MEEST ACTUELE INFORMATIE, CHECK DE ONLINE [IRO CALENDAR](#). BOVENSTAANDE ACTIVITEITEN ZULLEN ALLEEN DOORGANG VINDEN BIJ VOLDOENDE BELANGSTELLING VANUIT DE LEDEN.

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

IRO

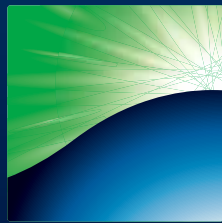
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**SAVE
THE
DATE**



OFFSHORE ENERGY23

**EXHIBITION & CONFERENCE
28 & 29 NOVEMBER 2023
AMSTERDAM | THE NETHERLANDS**

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