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04 HEAVE COMPENSATOR

In no less than 62 hours of rigorous offshore testing, tech scale-up Seaqualize successfully completed offshore trials for its inline Active Heave Compensator, the Delta600. Together with testing partners Van Oord en Marin, the offshore lifting tool was tested for fixed-to-floating and floating-to-floating transfers of 300mT loads.



07 UK GLOBAL LEADER

The UK's ambitious plan to install a total of 40 GW of offshore wind capacity by 2030 poses a significant challenge. It also creates an even more significant opportunity to demonstrate to Europe and the rest of the world how an innovative market leader gets the job done.



16 ENERGY ISLAND

Copenhagen Infrastructure Partners (CIP) from Denmark, has signed a partnership agreement with four internationally renowned companies (DEME, Acciona, Boskalis and MT Højgaard) within marine and offshore construction services, to develop the energy island in the Danish North Sea.



22 HANDS ON DECK

The world seems to be off course; the effects of human-caused climate change are enormous and are already bringing numerous regions to the edge of disaster. Extreme weather events, threaten to become the norm and do not promise anything good for the future. Siemens Energy CEO Christian Bruch spoke during COP26.

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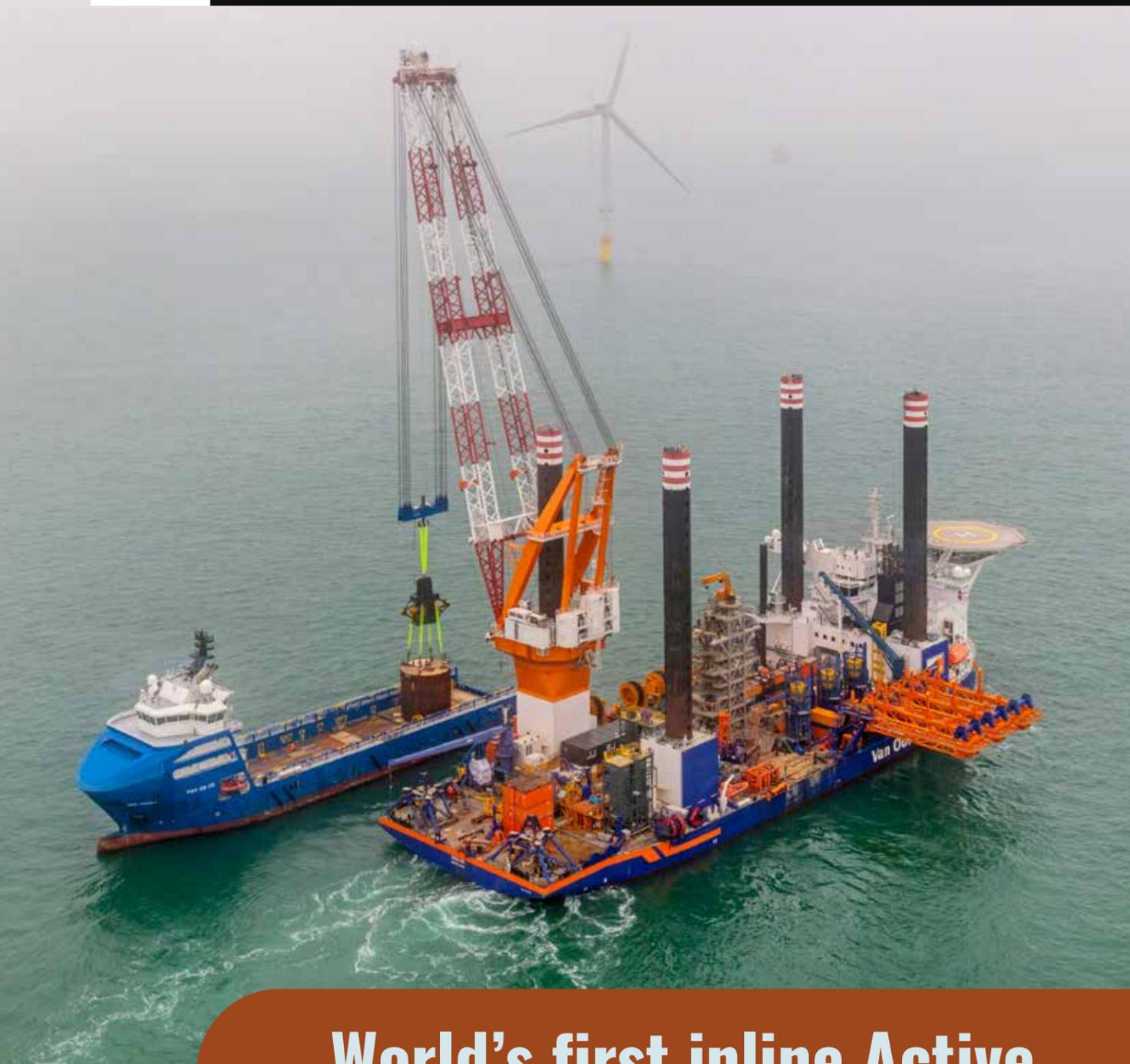
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**SUCCESSFUL TEST BY SEAQUALIZE,
TOGETHER WITH VAN OORD**



World's first inline Active Heave Compensator

In no less than 62 hours of rigorous offshore testing, tech scale-up Seaqualize from the Netherlands successfully completed offshore trials for its inline Active Heave Compensator (iAHC), the 'Delta600'. Together with testing partners Van Oord and nautical research institute MARIN, the offshore lifting tool was tested for fixed-to-floating, floating-to-fixed and floating-to-floating transfers of 300mT loads. The Delta600 is DNV certified and ready for work.

Since December 2019, Seaqualize, developed the world's first iAHC: a tool specifically designed for heavy lift, in-air load control. The tool can balance and transfer loads of up to 600mT in mid-air, while the barge or crane vessel is heaving up and down in heavy seas of up to Hs2,5m.

Functionality

This functionality is of great benefit during offshore wind turbine installations or when lifting delicate loads to and from floating supply vessels or barges. By engaging the Delta, the operational time for installation contractors greatly increases, especially in the hard-to-work winter, autumn or spring seasons. It offers contractors greater planning flexibility, and lifting crew a higher level of control, safety and efficiency. With the worldwide increase in demand in the offshore wind sector, increased capacity and efficiency is greatly needed. In the wider offshore community, perfectly controlled lifts are equally essential to safe, timely and efficient operations.

During the offshore trials, the Delta600 lifted a test weight to and from a floating supply vessel, using Van Oord's jack-up crane vessel Aeolus in both jacked and floating conditions. These floating-to-floating and floating-to-fixed lifts were operational tests of typical challenges in the offshore wind industry: installing turbine components using a floating vessel, or picking up components from a floating supply vessel. Such 'feeder barge' operations are essential in for example the US wind market. Transferring the most delicate parts of a wind turbine offshore is new to the market, and such operations comprise demanding lifting conditions and a new set of tools.

Wouter Dirks, Innovation Manager at Van Oord: "The offshore tests showed that the unique technology in the Delta will enable controlled offshore lifts during challenging feeder barge operations".





Key test results

During the tests, several very gentle set downs and quick lift-offs have been performed. MARIN observed that the tool is able to control the load within an envelope of 5cm, with minimal accelerations and dynamic crane forces. Lift-offs were performed with a solid 90% of the load already in the hook of the crane before lift-off, while still fully compensating all waves. This significantly reduces impact loads on the load, crane and rigging and results in a controlled and stable lift-off.

Finally, the tool showed off its 'follow-mode', where the test weight could actively match all heave motions of the target vessel, to further minimize set-down impact for floating to floating set downs.

This offshore trial was also the last step in full DNV product certification as a standard offshore lifting tool. The research project was executed with a grant from the Ministry of Economic affairs of the Netherlands, and included Dutch research agency TNO besides the offshore testing partners MARIN, Van Oord Offshore Wind and Seaqualize.

Next step

600mT Lifting may seem like a lot (e.g. it's equivalent to 3 Boeing 747's), but offshore wind turbine sizes are growing explosively, thus requiring ever bigger lifting tools for still very delicate components. Currently Seaqualize is designing the next version, the Delta1000, equipped for all next generation wind turbine components. Further conceptual improvements include the addition of single lifting points for quick-connect systems, and smart controlled tugger winches for supreme control in the horizontal plane. At the same time, the company will further develop its offshore operational support capabilities, by deploying the Delta600 in the field.



STROHM AND SIEMENS GAMESA

Collaboration for offshore wind-to-hydrogen infrastructure



Strohm, the world's first and leading manufacturer of fully bonded, Thermoplastic Composite Pipe (TCP), has signed a memorandum of understanding (MOU) with Siemens Gamesa Renewable Energy, the global market leader in offshore wind.

Martin van Onna, chief commercial officer at Strohm, says: "This is a truly exciting collaboration, working with Siemens Gamesa to understand how TCP can be the missing link in an offshore wind farm, generating green hydrogen. The key attributes of TCP - flexibility, no corrosion or maintenance requirements - allow for the most cost-effective infrastructure on a given wind farm. Our proven track record with TCP offshore is a pre-requisite to be considered a solution in future green hydrogen."

The collaboration will focus on developing hydrogen transfer solutions that improve the decentralized green hydrogen concept, whereby green hydrogen is generated in each wind turbine generator and transported to shore by a subsea pipe infrastructure. In this concept power cables are replaced by a pipe infrastructure, storing and transferring hydrogen. Siemens Gamesa has a technical advisory role.

Finn Daugaard Madsen, innovation manager – Power to X at Siemens Gamesa, added: "At Siemens Gamesa, we believe in the potential of green hydrogen and have been working on the decentralized concept for some years. Strohm has supported us through several case studies, identifying the solutions that can be readily used which complement our own systems. This partnership will assist us to innovate together in an open format, accelerating the availability of green hydrogen."

UK'S AMBITIOUS PLAN TO INSTALL A TOTAL OF 40 GW



How innovation can make the UK a global leader in offshore wind

The UK's ambitious plan to install a total of 40 GW of offshore wind capacity by 2030 poses a significant challenge. It also creates an even more significant opportunity to demonstrate to Europe and the rest of the world how an innovative market leader gets the job done.

Consider that installation, operation and maintenance (IO&M) can account for as much as a third of an offshore wind farm's levelised energy cost, that is, the average energy price it must receive over its lifetime to break even.

Home to a third of the world's offshore wind farm installations and more installed capacity than any other country, the UK has clearly staked a claim as an offshore wind powerhouse.

The Government's plan to increase offshore energy to one-third of the total energy mix by 2030 puts the country well along the path to achieving its goal of net zero greenhouse gas emissions by 2050.

Despite the many offshore energy innovations that have brought it to the global table, the UK's efforts are still often overshadowed by the European offshore energy giants. Being bigger, it seems, sometimes garners more attention than being better. The result - disproportionate reliance on European developers and technology.

To attain market share that is commensurate with its contributions, the UK offshore energy industry must differentiate itself from its competitors. That means encouraging even more innovation and then helping innovators develop and deploy those advances. While European partners may be needed for steel fabrication and other facets of offshore installation, these collaborations should steer clear of areas of UK strength.

To amplify the benefits of the UK's innovation culture and research infrastructure, there are three areas where the academic community, industry and public sector might focus. The country's reputation is built on innovations that reduce lifecycle costs and lower electricity prices, supporting everything from power grid transformation to the addition of green hydrogen energy to the offshore energy portfolio.

There are other areas where the UK could have equal or greater impact. Consider that installation, operation and maintenance (IO&M) can account for as much as a third of an offshore wind farm's levelised energy cost, that is, the average energy price it must receive over its lifetime to break even. The right IO&M innovations can reduce these costs, making a wind farm more cost-competitive.

One way the UK might capitalise on this opportunity would be by prioritising innovations in project delivery. Significant cost and schedule savings are possible, for example, by shifting from the traditional design and construction approach to an engineer-procure-construct (EPC) project delivery model.

Under the EPC framework, a single contractor oversees all engineering, procurement and construction, and is responsible for delivering the completed project to the owner on a defined schedule and budget. Commonly used on other types of major infrastructure projects, the EPC model offers wide ranging benefits to offshore wind projects. By integrating construction planning and long-lead equipment procurement with design, schedules can often be accelerated. Owners also benefit from working with a single responsible party that accepts at least part of the project delivery risk.

Coupled with lean techniques, pull planning and other collaborative best practices, EPC typically results in optimised designs and a more efficient construction process. In practical terms, that can mean anything from cost-saving construction alternatives or on-barge fabrication of key components to logistics efficiencies when transporting materials to the project site.

It can take up to four years to construct an offshore wind farm, compared to the 20-25 years it will be operated and maintained. Innovations that reduce O&M costs can result in cost savings that keep accumulating over the design lifecycle.

The UK already has a strong foundation in this area, given the smart technologies and other O&M advances British companies have already introduced in the aerospace industry and other manufacturing sectors. For proof, look no further than Rolls-Royce, the aerospace and defence company that optimises its planes' maintenance schedules using predictive analytics and employs digital twin technology, analytics and machine learning to reduce the amount of carbon its aircraft engines produce. Digital twins - virtual product models that can be updated alongside real-life counterparts - are also being used to support jet engine maintenance and efficiency improvements.

Jet engine manufacturers use sensors and smart technologies to monitor and track flight conditions, pilot responses and jet engine performance in real time. All are part of the company's plan to tailor maintenance regimens to each engine's needs. Its goal is to optimise engine life based on real-world conditions, rather than the dictates of a maintenance manual.

Change the words jet engine to wind turbine, and you begin to see the potential these and other digital technologies offer offshore wind farm O&M. By harnessing data to optimise the performance and life cycle costs of critical infrastructure, owners can reap significant cost savings over an installation's life.

Digital twins, analytics and machine learning also have the potential to improve efficiency and lower costs associated with site development, installation, condition monitoring, decommissioning and more. For example, solutions that factor in the current price of electricity could aid day-to-day operational decisions on energy production.

Because weather can be a key driver in power production and maintenance activities, a new generation of tools might include advanced ocean weather forecasting capabilities that maintenance crews can use when planning site visits for service and maintenance activities. Robotic solutions could be developed to perform repetitive tasks and complete work in high-risk, complex or tight-fitting conditions.

These examples are just the tip of the digital iceberg. The UK should explore smart solutions that benefit offshore energy O&M. Remote monitoring activities could be based in UK facilities, further establishing the country's dominance on the European playing field.

As offshore wind generation capacity grows, so does the need for an efficient transmission grid linking offshore sites to onshore power infrastructure. The current point-to-point connections were appropriate when expectations for offshore wind capacity were low. But given the UK's commitment to quadruple its offshore capacity by 2030, that structure is not sustainable.

Now is the time for the UK to embrace the next generation of innovative transmission infrastructure technologies, policies and methods. That could include a meshed offshore grid structure that connects wind farm clusters, offshore hubs and onshore infrastructure.

This approach could produce significant financial, technical and environmental benefits, though extensive industry collaboration would be required.

Lengthy discussions of a cross-Europe mesh grid system have largely ended with disagreements on funding and technology. This creates an opportunity for the UK to demonstrate industry leadership while differentiating itself in the market. A UK-only mesh grid - designed with UK-inspired innovations - could provide a prototype the world can follow as the offshore wind market expands.

Embracing a mesh grid system — like pursuing innovations in project delivery and O&M — can help the UK to decrease its reliance on its Europe offshore wind counterparts while positioning itself as a global market leader. That these efforts would also help the UK achieve its net zero greenhouse gas emissions goals is just the icing on the cake.

Original article written by Tony Appleton, director of offshore wind for Burns & McDonnell.

Because weather can be a key driver in power production and maintenance activities, a new generation of tools might include advanced ocean weather forecasting capabilities.

2022 - 2025 FOUR-YEAR STRATEGIC PLAN SAIPEM



Towards a new Saipem, innovation and development

At the end of October this year the Board of Directors of Saipem, chaired by Silvia Merlo, approved the 'Verso una nuova Saipem' strategic plan for the four-year period 2022 - 2025.

“The strategic plan we are presenting aims to build a company that grows, generates profits and cash flow with precise development objectives in the traditional energy sector, in the energy transition and in sustainable infrastructures, operating as a technological enabler of low carbon strategies,” said Saipem CEO Francesco Caio to Ocean Energy Resources.

“The energy transition is not a simple shift towards low carbon sources but a radical transformation of an entire ecosystem. From a highly centralized sector, characterized by large plants and not very digitized, to a distributed one, strongly interconnected, with a growing centrality of innovative services and new operators other than traditional ones in terms of both supply and demand. It is a profound change that requires innovative and flexible operating models to compete and grow profitably.”

Strong

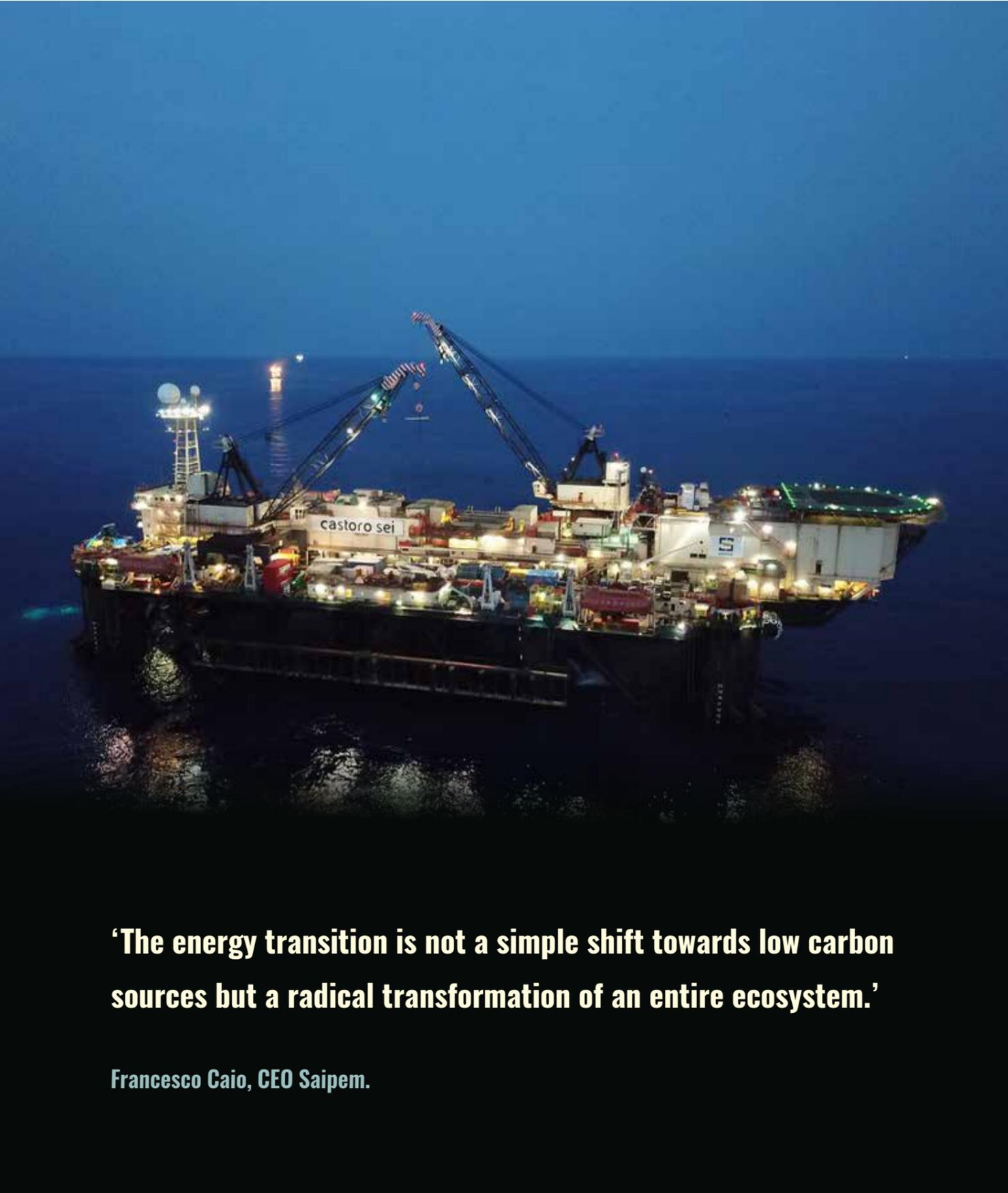
The plan is based on Saipem's strong and competitive positioning, on a solid relationship with customers, on the experience acquired in complex projects and infrastructures, on operational and international logistics expertise and on our important portfolio of technologies. From the logic of assets to the logic of innovation is our slogan for defining a type of business where technologies and skills allow us to also offer new services capable of generating more stable and recurring revenues.

Caio continued: “In this context the new plan intends to mark a change of pace for Saipem which adopts a business model centered on a dual strategy. On the one hand, engineering for complex plants designed in partnership with our traditional customers to implement their decarbonization strategy; on the other hand, the development and construction of modular, standardized and scalable systems and the provision of technologically and digitally advanced services. We have started the process of building a more sustainable, technological and profitable Saipem.”

Main points

Saipem has already launched an important efficiency plan through specific initiatives concerning the rationalization of assets (the gradual closure of three yards around the world and the disposal of five ships is expected), the streamlining of the operating model (with the rationalization of 3 engineering hubs located abroad) as well as the reduction of overhead costs (with the closure of 14 non-strategic offices abroad). The plan has the objective of reducing the overall cost base by around € 100 million in 2022 which will progressively rise to around € 300 million per year when fully operational in 2025.

In the period of the plan, revenues are expected to grow at an average annual rate of 15% until 2025 thanks to the contribution of the backlog at September 30, 2021 of approximately EUR 24.5 billion, new commercial opportunities and the favourable growth prospects envisaged in drilling. 2022 will be the year of the transition in which revenues and margins are expected to grow thanks to the



‘The energy transition is not a simple shift towards low carbon sources but a radical transformation of an entire ecosystem.’

Francesco Caio, CEO Saipem.

significant contribution of offshore activities and drilling, whose signs of recovery are already visible today. In 2023, adjusted EBITDA is expected to return to pre-Covid-19 levels to reach double-digit margins in the second part of the plan.

To support the growth that characterizes Saipem's new strategy, cumulative investments of approximately 1.5 billion euros are expected to be made over the plan period, including over 200 million euros for investments aimed at enriching the Group's technology portfolio. From a financial point of view, the operational performance expected to grow in 2022 will be offset by the cash absorption due to the dynamics of working capital and by the capex: the net financial debt in 2022 is expected to grow to approximately € 2.2 billion (including the IFRS16 impact) to then benefit from the significant expected cash generation of over 800 million euros in the four-year plan. The plan envisages a net financial debt of less than € 1bn by 2025.

To implement its new strategy, Saipem will adopt a new organizational model divided into 4 distinct business areas, each one with different dynamics, objectives, skills.

1 Asset-centric business (drilling, vessels, fabrication), based on a rigorous discipline of asset optimization. This business will produce a significant contribution to the growth in turnover and margins, also thanks to the focus on geographies and key customers and thank to the restart of the cycle. At the end of the plan a reduction in costs is

expected, compared to 2020, due to non-use of drilling equipment by approximately 85% and by approximately 50% for the rest of the fleet, also thanks to the expected stronger activities connected to the new favourable scenario.

2 Business 'energy carriers', for the design of complex plants or their conversion to low carbon with a growing focus on the best risk / return balance and with greater attention to margins. The strategy encompasses the enrichment of the technology portfolio through corporate venture capital operations or selected acquisitions of skills such as the one carried out last year with 'CO2 Solutions'.

3 Business robotics, digital and industrialized solutions for the development of the offer of modular / repeatable / scalable systems and monitoring and maintenance services based on digital technologies. In this context, it is planned to structure Saipem's participation in new offshore wind projects to be developed with commercial and industrial schemes different from the past, also without excluding any partnerships. In the floating wind energy sector, Saipem has recently acquired Naval Energies' activities.

4 Sustainable infrastructure business: for growth in a sector that has become strategic in the new ecosystem of the energy transition and sustainable mobility and for which the Italian Recovery Fund will hopefully function as an accelerator. The plan provides for new orders for infrastructures of approximately 3 billion euros over the four-year period.

CIP SECURES WORLD-CLASS GLOBAL CONTRACTOR GROUP

Partnership to develop world's first energy island project

Copenhagen Infrastructure Partners (CIP), has signed a partnership agreement with four internationally renowned companies within marine and offshore construction services, to develop the energy island in the Danish North Sea.





The four chosen contractors are ACCIONA, Boskalis, DEMA and MT Højgaard International, each of which offer a unique set of capabilities and experience. These contractors, together called the Njord Group, display an impressive track record, as well as an extensive pool of best-in-class equipment and skilled staff needed to ensure reliable and timely project development and execution. The Njord Group will be advised by engineering consultancy Niras.

CIP acts as project developer on behalf of an investor consortium composed of PensionDanmark and PFA, two of Denmark's largest pension funds, and Denmark's largest utility company, Andel (collectively known as the VindØ consortium).

The signing of this agreement marks a significant step towards realising the world's first energy island, a project conceptualised by CIP, and a crucial project in unlocking the rapid and unprecedented build-out of global offshore renewable energy to fight climate change.

Location

The energy island in the North Sea will be located approximately 80-100 kilometres off the Danish west coast, where conditions for green energy production based on offshore wind are optimal. The island will be able to connect 10 GW of offshore wind to Denmark and other neighbouring markets, host an innovation zone with potential for large-scale energy storage and Power-to-X technologies, and provide accommodation and operation and maintenance services from onsite harbour facilities.

Screening

"Copenhagen Infrastructure Partners has thoroughly screened the most experienced experts and the world's best-suited contract partners for the Energy Island project. We are confident that the Njord Group offers the experience and capabilities needed for a successful project execution in a safe and reliable manner, even in a harsh marine environment far offshore in the Danish North Sea," says Thomas Dalsgaard, Partner in CIP.

"ACCIONA, Boskalis, DEMA and MT Højgaard International display, individually and as a group, extensive and complementary experience and equipment, and have successfully developed and constructed many similar projects around the world. We are very pleased to enter into this partnership with such a strong set of partners," he adds.

Reference projects

A selection of Njord Group's projects and relevant operational experiences include a range of innovative construction projects designed to cater for rigorous environmental and regulatory requirements. The reference projects include:

- ❑ **Barrow Island Project:** an island constructed in a very strictly regulated natural environment offshore Western Australia with logistical challenges from the project's remoteness and the harsh weather conditions.
- ❑ **Tuas Port Expansion Project:** a greenfield port expansion project in Singapore with extensive dredging, excavation and land reclamation, including the design, construction, and installation of concrete caissons for quay walls.
- ❑ **Viking and Vulcan Decommissioning Project:** an offshore decommissioning project in the Dutch part of the North Sea, including removal, transportation and disposal services of the Viking and Vulcan oil platforms.
- ❑ **Follo Line and Øresund bridge Projects:** two mega-projects in a Scandinavian setting with the Norwegian Follo Line project, 19.5 kilometres of twin tunnels under construction, and the 7.8 kilometres long Øresundbridge connecting Denmark and Sweden.
- ❑ **Fehmarnbelt Tunnel:** a link between Rødbyhavn on Lolland, Denmark and the German island of Fehmarn to be built as an immersed tunnel.



'We are looking forward to making a significant contribution to help advance solving Denmark's energy transition challenge.'

Luc Vandenbulcke, CEO DEMA Group.

Statements

"CIP and the VindØ consortium's ground-breaking energy island project in the North Sea provides an excellent opportunity for the contractors of the NJORD Group to make a significant contribution to the green transition by leveraging the full force of our combined power of innovation, expertise and services, supported by world-class equipment and professionals. We are focused on ensuring smooth project execution from the detailed planning phase to the point of project finalisation and full operation," says Morten Hansen, Group CEO of MT Højgaard Holding, speaking on behalf of the entire group of chosen contractors.

"The North Sea Energy Island project is an outstanding advance in the development of infrastructures that fight against climate change, one of ACCIONA's main commitments for which it has been working for many years. ACCIONA is a global company recognised worldwide for the development of resilient infrastructures thanks to the technical excellence of our teams and the application of the latest innovation advances in our projects. Our extensive maritime construction experience, alongside the great capacity and local experience of our partners in the NJORD Group, has resulted in a consortium with a great potential that wishes to contribute to the successful execution of this ambitious project in Denmark," said Huberto Moreno, Construction CEO of ACCIONA.

"We are proud to join CIP and the VindØ consortium, which gathers a core group of global leaders in maritime engineering solutions for offshore renewable energy production, storage and transmission. DEMA Group has been pioneering the concept of energy islands off the coast, and is currently involved in designing, planning and executing similar projects in different parts of the world. We understand the complexity of renewable energy generation and storage on an artificial, multifunctional island at sea, and can rely on a track record of on-time delivery in the harshest marine weather conditions. We are looking forward to making a significant contribution to help advance solving Denmark's energy transition challenge," says Luc Vandenbulcke, CEO of DEMA Group.



DANISH GROUP MADE TWO 'GIGAWATT SCALE' BIDS

Ørsted predicts rapid scaling in floating wind charge



The world's leading offshore wind developer Ørsted plans to use its scaling learnings and design partnerships to accelerate commercial floating wind build in Scotland.

Ørsted's bids in the ScotWind offshore wind leasing round represent a significant push by the world's largest offshore wind developer into the emerging floating wind market.

The Danish group made two 'gigawatt scale' bids with partners BlueFloat Energy and Falck Renewables and three other solo bids including fixed bottom and floating technologies for a total capacity of 8.5 GW. The leases allow developers to bid in UK contract for difference (CFD) auctions that award 15 years of guaranteed offtake revenue and are held every two years.

Ørsted's thrust into floating wind comes as the industry moves from pilot projects to commercial-scale arrays. The 50 MW Kincardine wind farm in Scotland is currently the largest floating wind project online but the UK, France and Spain have announced tenders for much larger projects. The UK has set a target of 1 GW of floating wind by 2030 but could far exceed this given recent tender announcements in Scotland.

Ørsted will use its fixed-bottom expertise to commercialise and industrialise floating wind technology, Duncan Clark, Head of UK at Ørsted, told Reuters Events. Ørsted's fixed bottom offshore wind projects have helped build out UK supply chains, vessel networks and maintenance hubs. The company has installed 12 fixed-bottom offshore wind farms in the UK and is building the 1.4 GW Hornsea 2 wind farm off the coast of England.

"We bring a lot of capabilities," Clark said. "The scale and pace efficiencies that have been developed and continue to be refined in fixed-bottom, will be more rapidly available to floating solutions."

ScotWind will allocate 10 GW of fixed and floating wind projects and Ørsted faces stiff competition - the auction attracted 74 applications for the 15 available leases.

If successful, Ørsted plans to develop smaller floating wind projects in its solo bids on an accelerated timeline while it develops the larger projects with BlueFloat and Falck.

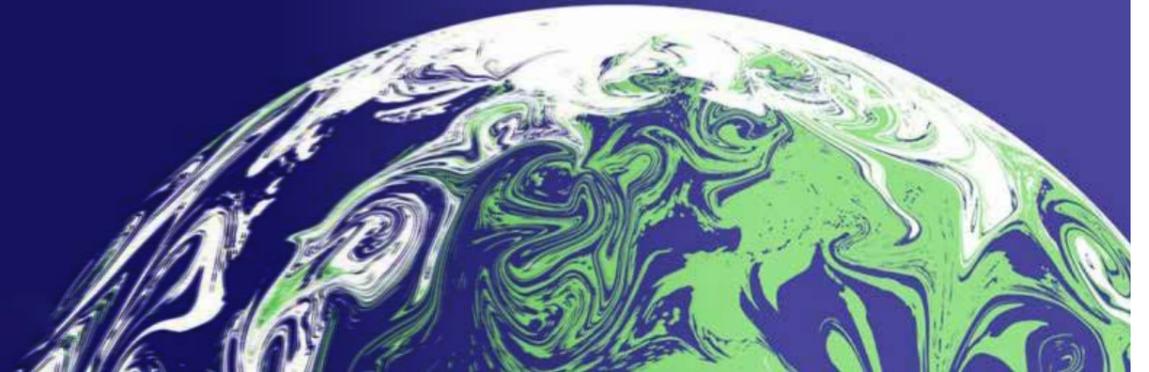
"This pipeline of Scottish floating wind projects will reinforce Scotland's status as a global leader in floating wind," the company said.

SIEMENS ENERGY CEO CHRISTIAN BRUCH ON COP26

All hands on deck



THE CLIMATE HAS NO BORDERS



The world seems to be off course: The effects of human-caused climate change are enormous and are already bringing numerous regions to the edge of disaster. Extreme weather events, as we have experienced around the globe this summer, threaten to become the norm and do not promise anything good for the future. The Intergovernmental Panel on Climate Change has already raised the warning that the average global temperature could rise by more than 1.5 degrees before 2030. The Paris climate target, agreed by around 200 nations in 2015, would thus be history in less than eight years. The promise made by some 200 countries to save the world from collapse would then be invalid.

The vessel is being built by The positive news is that we can still turn the tide and change a lot. But we must act now. Declarations of intent and the inflationary overachievement of targets without corresponding measures are no longer enough. Anyone who promises climate neutrality for 2050 must say today what they want to have achieved in one, five and ten years.

Whether Glasgow really marks the start of the decade of implementation can only be judged when the World Climate Summit comes to an end. However, it seems that the hopes placed in COP26 will not be fulfilled. Nevertheless, we should take away from Glasgow the commitment to achieve more than can be described by final declarations alone.

The IPCC report was very clear, we need to act, and we need to act now. It's not just about introducing new technologies. Nor is it just about saving a little energy. It's about fundamentally changing our approach to dealing with energy in an environmentally responsible and climate-friendly way. This affects everyone, whether politicians, corporations or citizens. Everyone is needed on deck here.

The coal phase-out is inevitable

At the top of the to-do list is the phase-out of coal. A good 70 percent of global CO2 emissions from electricity generation are caused by coal-fired power plants. According to the London-based think tank E3G, the number of new coal-fired power plants planned worldwide has fallen by two-thirds since the UN climate summit in Paris in 2015, but numerous influential countries around the world still rely on coal. There is no question: the phase-out will cost money and will be an international effort. The richer countries will have to help the poorer countries in accordance with the Paris Agreement. But it is definitely a sensible investment in the future.

In Germany, for example, the last coal-fired power plant is scheduled to go offline in 2038. But it seems relatively likely that the new coalition will agree on a faster phase-out. It would be desirable.

No technological barriers

The United Kingdom shows that a faster phase-out of coal is possible. Just in time for the world climate summit in Glasgow, the share of coal has fallen to an all-time low; the fossil fuel still accounts for just under two percent of the electricity mix - ten years ago, it was still around 40 percent. Boris Johnson and his confederation of states want to have completely phased out coal-fired power generation in just three years. Such measures are having an effect: in the last 30 years, emissions from power generation in the UK have fallen by almost two-thirds. The Kingdom has achieved this not only through the increased use of renewable energies (and nuclear power), but also through the use of natural gas. While environmental groups criticize the use of the fuel, the fact is that natural gas can help significantly reduce CO2 emissions immediately. Of course, more renewable energies are preferable. But the quantities available are currently nowhere near enough to meet the world's electricity needs. If gas helps us build a bridge by reducing CO2 emissions by a good two-thirds compared to coal, while guaranteeing security of supply, then we should use the bridge. Will gas still be the right approach 25 years from now? Probably not. But we should finally stop always talking about long-term targets and act immediately.

Financial compensation for countries on a global level

Another important factor for the success of Glasgow will be whether the industrialized countries keep their promise to support the energy transformation in the poorer countries with 100 billion U.S. dollars annually. This was first decided in 2009 at the World Climate Conference in Copenhagen, and the money was supposed to start flowing in 2020. However, not enough has happened; experts estimate that the target of 100 billion U.S. dollars per year will not be reached for another two years. Yet the poorer countries are in urgent need of support, and not just for the coal phase-out. The effects of climate change are unevenly distributed, with developing countries and the southern hemisphere being hit hardest. This must be taken into account. Not only was it affirmed in the Paris Agreement, but it is also the moral obligation of the industrialized countries, which have built up their prosperity over decades at the expense of the environment and thus at the expense of poorer countries.

A decade of action - it's up to us

Finally, we cannot avoid the consistent introduction of a CO2 price if we are serious. Without appropriate incentives, behavior will not change, neither that of individual countries nor that of industry. How high the price per ton must be for it to have an effect can vary from sector to sector. There are already enough studies and expert opinions on this. However, it is important that there is a common, fair price system in as many regions as possible that takes account of international competition and prevents social burdens - and thus the division of society - through compensation mechanisms.

We should not accept falling short of the original claim. No matter what the delegates in Glasgow decide, in the end it is also up to each of us ourselves whether we get back on track and turn things around. Every politician, every company and ultimately every consumer has a responsibility. We need a social consensus that change is necessary and positive, and that sustainability has value. We are already in the middle of the storm. And that's where it has to be: all hands on deck.

Opinion piece of the Siemens Energy CEO Christian Bruch on COP26.

THE NET ZERO TECHNOLOGY CENTRE

International collaboration study accelerates global path to net zero



The Net Zero Technology Centre in Aberdeen has announced an international research study initiated by a collaboration of technology and research organisations from around the world, the results of which will be presented at COP27 in 2022.

The Centre's 'Technology Driving Transition Global Summit' hosted in Glasgow at COP26 early November was opened by Michael Matheson MSP, Scottish Government Cabinet Secretary for Net Zero, Energy and Transport. The Summit brought together ten research organisations to present their flagship research on the energy transition.

The international organisations include TNO (The Netherlands), NREL (US), Rice University Carbon Hub (USA), C-SIRO (Australia) and NERA (Australia), InnoTech Alberta (Canada), PRNL (Canada), RCGI (Brazil), and the Industrial Decarbonisation Research & Innovation Centre (IDRIC) and Scottish Carbon Capture & Storage (SCCS) in the UK. Each will contribute to the 'Technology Priorities for a Net Zero Integrated Energy System: a global perspective' study.

Enhancing international collaboration is a key priority for the COP26 Presidency, and is seen as a catalyst in accelerating technology innovation for a global impact. Creating an integrated energy system requires countries, governments, technology centres and research institutions to collaborate to achieve global climate change goals.

Working together, the research organisations will analyse key energy transition technologies across mature hydrocarbon basins, including blue and green hydrogen, offshore wind, oil and gas electrification, direct air capture and carbon capture, utilisation and storage. The study will identify technology gaps and innovation priorities to accelerate an integrated net zero energy future.

The Net Zero Technology Centre presented the findings from its Closing the Gap and Integrated Energy Vision reports, highlighting how the energy transition could contribute £2.5 trillion to the UK economy and create over 200,000 new jobs.

Michael Matheson MSP, Scottish Government Cabinet Secretary for Net Zero, Energy and Transport, said: "Innovation and technology have a key role to play in the energy transition and our target of achieving net zero emissions by 2045. Net Zero is a Global Innovation Challenge, and along with that and collaborative international research, it will enable us to accelerate the journey to achieving that goal.

Scotland's position on oil and gas is clear - our focus must now be on achieving the fastest possible just transition for the oil and gas sector - one that delivers jobs and economic benefit, and also ensures our energy security, and meets our climate obligations. We have a real opportunity to become a global leader in energy transition and can play a pivotal role in helping other countries decarbonise and begin their energy transition journey.

Offshore Energy Integration offers considerable opportunities to support the North Seas transition to Net Zero and recognises the role that technology - such as carbon capture and use of hydrogen - can play in helping both. Scotland and the UK meet our greenhouse gas emission reduction requirements.

The skills, expertise and infrastructure of the oil and gas sector and its supply chain will be vital in unlocking these opportunities for the integration and ensuring a just transition to a greener and fairer economy and society.

This study demonstrates how innovation and technology with impact will support the world in achieving the fastest possible Just Transition for the oil and gas sector, one that delivers jobs and economic benefit, ensures our energy security, and meets our climate obligations."

UK Government Minister for Scotland, Malcolm Offord said: "This initiative by the Net Zero Technology Centre to bring together research experts has been hugely worthwhile. Encouraging collaboration between countries to exchange valuable ideas is our best hope for securing a smooth, sustainable and economically-beneficial transition away from fossil fuels. In the North Sea in particular, we have immense energy expertise, and that knowledge can put us front and centre of the new green industrial revolution. Held at the same time as the crucial COP26 summit, this week's conference has sparked innovation that will help us all achieve our Net Zero goals."

Luca Corradi, Innovation Network Director commented on the collaboration: "Climate change doesn't stop at borders, and neither should the effort to fight against it. That's why we are collaborating with several Technology Centres around the world. To identify and address the technology innovation priorities required to fill the gaps in the journey to an affordable integrated net zero energy system."

"The ten centres that came together at COP during the Technology Driving Transition Summit days show that this collaboration is possible. This study will enable and unlock opportunities to share knowledge and jointly develop technology solutions to meet 2050 targets. Leveraging existing skills, expertise, and infrastructure is crucial to achieving a rapid and just transition to net zero."



Rene Peters, Market Director Gas Technology at TNO comments:

"Towards a net zero energy system the regions with a fossil based energy system will need to transform towards an integrated sustainable energy system. An example is the North Sea region, where oil and gas production is replaced by offshore wind production, CO2 storage and hydrogen production while the assets of the old energy system are retrofitted and repurposed."

"An integrated energy system can accelerate transition, at lower societal cost and more efficient use of space. In the study we will compare different approaches and best practices of various integrated regions which are in transition towards a net zero energy system."

OUTCOME OF 23RD MINISTERIAL MEETING OF GECF

Decarbonisation should be approached with careful consideration

The 23rd Ministerial Meeting of the Gas Exporting Countries Forum (GECF) was held on 16 November 2021, under the Chairmanship of HE Franklin Molina Ortiz, Minister of Hydrocarbons and Energies of the Plurinational State of Bolivia as its President.



The 23rd Ministerial Meeting of the Gas Exporting Countries Forum



On the backdrop of unprecedentedly high gas prices fracturing market stability, the 23rd Meeting was attended by Energy Ministers and senior figures from GECF Members Algeria, Bolivia, Egypt, Equatorial Guinea, Iran, Libya, Nigeria, Qatar, Russia, Trinidad and Tobago, and Venezuela, as well as Angola, Azerbaijan, Iraq, Malaysia, Norway, Peru, and the UAE as Observers.

The Meeting took into account the immediate and long-term outlook for natural gas, which, despite the recent upheavals in the energy markets, remains positive and on course to become the leading fossil fuel in the world by 2050, increasing its share from 23% today to 27%. In fact, the Ministers noted, that as the global economy moves from under the shadow of the coronavirus pandemic, the resulting shortage of gas from Europe to Asia demonstrates the need for further investments in natural gas as a cheap, abundant, and flexible source of energy to achieve energy equality for all parts of the world in a sustainable manner.

The Ministers commended the heightened interest in natural gas at the recently-concluded Conference of Parties (COP26), where several world

leaders backed gas as the harbinger to their nations' economic and sustainable development. As an Observer to the United Nations Framework Convention on Climate Change (UNFCCC), the GECF had urged the international community in Glasgow to look to gas as the solution to achieve the right balance between post-Covid-19 economic and social requirements and environmental constraints.

Furthermore, the GECF Members acknowledged that decarbonisation of economies should be approached with careful consideration to hasty acceleration of greening of economies lest the climate agenda turns into an energy crisis. While noting that high gas prices are not in the interest of buyers or the sellers, the Ministers reiterated the fundamental role of long-term gas contracts and the gas pricing based on oil/ oil products indexation to ensure stable investments in the development of natural gas resources.

In his opening remarks, HE Franklin Molina Ortiz shared his vision for the gas industry's development as well as the increasingly crucial role of the GECF as a platform for dialogue between producers and consumers of gas and all other stakeholders of the global energy system.

HE Yury Sentyurin, Secretary General of the GECF, presented the traditional Management Report of the Secretariat, which included the plethora of activities undertaken in the past 12 months in order to realise the spirit and actions of the 2019 Malabo Declaration, the GECF Statute, its Long-Term Strategy, the 5-Year Working Plan, and the 2020 and 2021 Programmes of Work.

The Ministers received a preview of the 2021 edition of the GECF's flagship publication, Global Gas Outlook 2050, which will be unveiled on the sidelines of the 6th GECF Summit of Heads of State and Government in Doha, Qatar in February 2022. On other key deliverables of the Forum, the Ministers lauded the work on the 2021 editions of the Annual Statistical Bulletin and the Annual Short-Term Gas Market Report.

Given technology's pivotal role in transforming the gas industry, the Meeting acknowledged the important work that the newly-established Gas Research Institute is set to play in unearthing innovative technologies and other solutions for the benefit of GECF Members and the larger industry.

Meanwhile, the Ministers recorded their satisfaction with the ongoing preparations for the successful hosting of the 6th GECF Summit by the State of Qatar in February 2022.

The Ministers appointed HE Eng. Mohamed Hamel as the Secretary General of the GECF, effective from 1 January 2022.

The Ministerial Meeting appointed His Excellency Eng. Tarek El Molla, Minister of Petroleum and Mineral Resources of the Arab Republic of Egypt as President of the GECF Ministerial Meeting for 2022, and His Excellency Nikolai Shulginov, Minister of Energy of the Russian Federation, as the Alternate President.

Additionally, the Ministerial Meeting appointed Ms Penelope Bradshaw-Niles from Trinidad and Tobago as the GECF Executive Board Chairman and Mr Álvaro Hernán Arnez Prado from Bolivia as the Alternate Chairman for the same period.

The Meeting decided that the 24th GECF Ministerial Meeting will convene in Cairo, the Arab Republic of Egypt, in October 2022.

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 MET JEROEN TRESFON, J.TRESFON@IRO.NL

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

> **CURSUSSEN** NEM CONTACT OP MET BARBARA VAN BUCHEM, B.VANBUCHEM@IRO.NL

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

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FIJNE FEESTDAGEN NAMENS HET IRO TEAM!

Het IRO team wenst jullie gezellige kerstdagen en een gezond en energiek 2022! We hopen jullie volgend jaar weer te ontmoeten bij één van onze bijeenkomsten of beurzen.

Het IRO (thuis)kantoor is i.v.m. de feestdagen gesloten van 27 december t/m 4 januari 2022.



ADIPEC GROOT SUCCES!

Met meer dan 80.000 bezoekers was ADIPEC in Abu Dhabi (15-18 november) een groot succes.

Dankzij strenge maatregelen kon de grootste energiebeurs ter wereld veilig plaatsvinden en de energietransitie was het belangrijkste thema. Van onze 23 deelnemende leden horen wij positieve geluiden: veel contacten en veel leads.

Volgend jaar zal er weer een Netherlands Pavilion zijn van 7-10 december 2022; wij hebben al geboekt! Houd de nieuwsbrieven in de gaten, in januari zal de inschrijving openen.



EN DE WINNAAR VAN DE YOUNG IRO BEST MENTOR AWARD 2021 IS...

Giuseppe Petrina, Programme Manager VO:X Data bij Van Oord! Op vrijdag 26 november, de dag dat het jubileum plaatsgevonden zou hebben, werd deze felbegeerde prijs uitgereikt.

Het was een spannende race, maar toen alle 500 stemmen waren geteld, kreeg Giuseppe de meeste stemmen en nam hij de Award op 26 november in ontvangst! We willen iedereen bedanken voor het stemmen. Ook een dikke pluim voor de andere twee genomineerden; Jelmer Jacobs van TWD en Jiska Bazuin van Pronomar. Bekijk hier de video van de uitreiking.



SAVE THE NEW DATE: IRO 50-JARIG JUBILEUM – ALLÉEN VOOR IRO LEDEN

De nieuwe datum voor de viering van het 50-jarig IRO jubileum is bekend!

Houd donderdag 23 juni 2022 vrij in de agenda voor een fantastisch feest in de Fokker Terminal in Den Haag.

- 15.00 uur inloop
- 16.00 uur aanvang programma
- 19.30 uur walking dinner + feest
- 24.00 uur einde

Meer informatie over het inhoudelijke programma en aanmelding volgt in de loop van 2022 via mailings en social media. We kijken ernaar uit om deze mijlpaal dan écht live met jullie te vieren! Let's celebrate the future!

Celebrating the future. Embracing the energy transition.



50 JAAR IRO: BOEK 'WAGEN EN WINNEN' OFFICIEEL GELANCEERD!

Ter gelegenheid van het vijftigjarig jubileum van IRO is een boek uitgekomen: **'Wagen en winnen. De Nederlandse offshore-industrie, pionier in energietransitie'.**

Op vrijdag 26 november, de dag dat het jubileum plaatsgevonden zou hebben, kreeg IRO voorzitter Pieter van Oord het eerste exemplaar uitgereikt door Charlotte Roodenburg in de Willemswerf in Rotterdam, gevolgd door een interview met de auteurs Joke Korteweg en Frits Looimeijer.

In dit boek beschrijven zij de fascinerende ontwikkeling van de Nederlandse offshore-industrie, die al vijftig jaar behoort tot de top vijf van de wereld.

Bekijk in [deze video](#) de uitreiking en het interview met auteurs Frits Looimeijer en Joke Korteweg o.l.v. Charlotte.

Boeken bestellen?

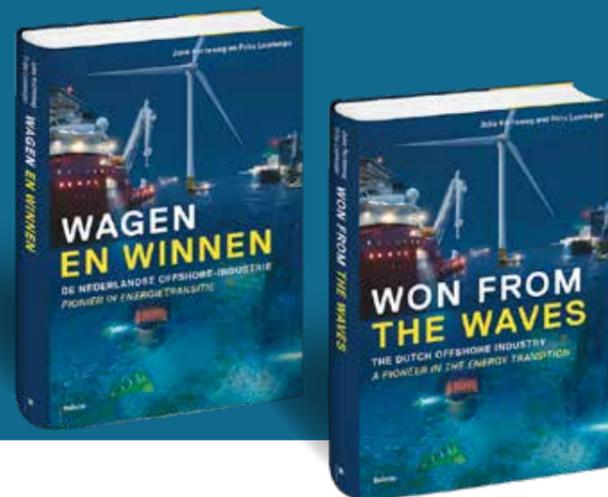
Alle IRO lid-bedrijven hebben 1 exemplaar van dit bijzondere boek per post toegezonden gekregen. Wil je meer boeken bestellen, om bijvoorbeeld aan relaties of medewerkers te overhandigen? Dat kan! Het boek is verkrijgbaar in het Nederlands of Engels voor de **speciale ledenprijs van €20,- per boek (excl. btw en verzendkosten)**. Graag ontvangen wij je bestelling per mail via events@iro.nl, onder vermelding van: bedrijfsnaam, naam contactpersoon, adres en aantal exemplaren per taal (Nederlands of Engels).

Waar gaat het boek over?

'Wagen en Winnen' beschrijft hoe deze tak van industrie met veel lef en technisch vernuft opereert in een steeds kritischer maatschappelijk en politiek klimaat. Vandaar de ondertitel 'Pionier in Energietransitie'. Tijdens het onderzoek bleek dat de sector, hoe divers ook, wist in te spelen op uitdagingen zoals de energietransitie. Aanvankelijk verliep deze transitie van kolen naar olie en gas, daarna van olie en gas naar duurzame energie. Offshorebedrijven nemen hierin vaak de voortrekkersrol op zich, al is dit voor een buitenstaander niet altijd zichtbaar. In dit boek komt deze maatschappelijk relevante sector in een nieuw licht te staan door lijnen die vanuit het verleden worden doorgetrokken naar het heden en de toekomst.

Nederlandse titel: Wagen en winnen. De Nederlandse Offshore-industrie, pionier in energietransitie.

Engelse titel: Won from the Waves. The Dutch Offshore Industry. A Pioneer in the Energy Transition.



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DRUKTE VAN BELANG TIJDENS WIND EUROPE ELECTRIC CITY

Met 37 deelnemers in het Wind & Water Works Dutch Village was het een drukte van belang tijdens de Electric City beurs van Wind Europe in Kopenhagen (23-25 november).

De sfeer was geweldig en er werden goede zaken gedaan. Binnenkort publiceren wij de Wind & Works jaarplanning met de beurzen in het komende jaar. Wind Energy Hamburg (27-30 september 2022) zal het grootste wind-evenement zijn.



IRO VOORZITTER PIETER VAN OORD: BELANGRIJKE OPGAVE VOOR IRO LEDEN OM TE WERKEN AAN EEN TOEKOMSTBESTENDIGE SECTOR

Een volle zaal dinsdag 2 november jl. tijdens de gelukkig weer fysieke jaarlijkse IRO Algemene Ledenvergadering bij Van Oord in Rotterdam! Het jaar 2021 gaat wederom de boeken in als een jaar met veel uitdagingen voor de IRO leden en een verenigingsjaar gekenmerkt door enkele tegenslagen zoals geannuleerde of uitgestelde beurzen en ledenbijeenkomsten. Maar ondanks de beperkingen zijn wij erin in geslaagd om virtueel zichtbaar te blijven en het IRO netwerk daarmee te onderhouden en te versterken. Daarnaast hebben wij vanaf september gelukkig weer een aantal fysieke events kunnen organiseren, zoals de rondvaart door het Rotterdams havengebied, georganiseerd i.s.m. Offshore Community Rotterdam en Rotterdam Partners en de ledenbijeenkomst bij Rotterdam Offshore Group. Ook konden we elkaar weer fysiek treffen op de beurzen Offshore Energy en Europort.

De belangrijkste punten op de agenda:

- presentatie financiën: resultaat 2020 – prognose 2021 – begroting 2022
- aftreden bestuursleden Edward Heerema (Allseas), Koos-Jan van Brouwershaven (Heerema Fabrication Group & Heerema Marine Contractors)
- benoeming Pieter Heerema (Allseas), Jan van der Tempel (DOB-Academy), Fred van Beers (Sif-Group)
- herbenoeming René Peters (TNO), Bruno Jelgerhuis Swildens (EY), Pieter van Oord (Van Oord) tot juni 2022
- aankondiging aftreden voorzitter Pieter van Oord (Van Oord) en aantreden nieuwe voorzitter Mark Heine (Fugro) per juni 2022

Jaarrede IRO voorzitter

In zijn jaarrede blikt IRO voorzitter Pieter van Oord terug op de afgelopen periode en scheen zijn licht op de huidige situatie in de energiemarkten en de energietransitie. "De urgentie van klimaatverandering en de energietransitie begint steeds meer door te dringen, gedreven door toenemende ambities en bijbehorende doelen en maatregelen. Er ligt hier een enorme uitdaging waarbij we samen de juiste versnelling moeten vinden om zowel onze samenleving leefbaar te houden, als ook de economie op een gezonde manier te verduurzamen. Voor ons als bedrijven betekent dit dat we ons meer weerbaar moeten maken in tijden van onzekerheid en verandering. Door:

- 1) In onze core business veel meer in te zetten op (missie gedreven) innovaties voor emissiereductie en nieuwe energiesystemen
- 2) Veel sterker in te zetten op het exploreren en ontwikkelen van winstgevendende groei opties in vergroening van de energieketen
- 3) Te kijken naar hoe we de structuur binnen en buiten onze organisaties kunnen veranderen en aantrekkelijker maken, om zo beter nieuwe business en technologie te ontwikkelen

Dit vraagt ook om een sterkere regie en nieuw industriebeleid vanuit de overheid. Er ligt een belangrijke opgave voor ons allen om te werken aan een toekomstbestendige sector. Een sector, een industrie, die vanuit complexe uitdagingen kansen creëert voor een betere toekomst. Ik ben ervan overtuigd dat wij, als een van de sterkste offshore clusters in de wereld, deze stap kunnen zetten."

Sentimentsonderzoek IRO leden

Bram Kuijpers van EY-Parthenon nam het stokje over en gaf in zijn presentatie inzicht in het sentimentsonderzoek onder de leden over de toekomst van de branche. Hij concludeerde dat de Oilfield Services (OFS) bedrijven voorzichtig optimistisch zijn over de huidige situatie, ondanks (of dankzij) de opkomst van hernieuwbare energiebronnen en de uitdagingen die dit met zich meebrengt.

[Download de hele presentatie hier.](#)

Young IRO

Tot slot gaf Ruben de Nie, vice-voorzitter van Young IRO een samenvatting over de activiteiten van Young IRO in 2021 en deed een oproep voor meer ambassadeurs binnen Young IRO. Aanmelden kan via young@iro.nl. [Download de hele presentatie hier.](#)

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

NIEUWE IRO LEDEN STELLEN ZICH VOOR



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BEURSGENOTEERD

SPE OFFSHORE EUROPE, 1 - 4 FEBRUARI 2022, ABERDEEN, SCHOTLAND

Helaas is er niet genoeg interesse gebleken om aan deze beurs deel te nemen.

OTC ASIA 2022, 22 - 25 MAART 2022, KUALA LUMPUR, MALEISIË

Op moment van schrijven is er nog één stand beschikbaar. Informeer snel bij Marjan Lacet van NMT of dit nog steeds zo is: Lacet@maritimetechnology.nl

SPE OTC, 2 - 5 MEI 2022 HOUSTON, VS

IRO verzorgt het Dutch Pavilion tijdens deze grote beurs.

ONS, 29 AUGUSTUS - 1 SEPTEMBER 2022, STAVANGER, NOORWEGEN

*Tijdens ONS is niet alleen de fossiele energiewinning, maar ook de energietransitie/renewables een belangrijk thema, mede gezien de investeringen die de Noorse overheid doet. IRO organiseert een Dutch Pavilion tijdens deze beurs. [Klik hier](#) voor mogelijkheden, prijzen en aanmelden. **LET OP: deadline 21 januari!***

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 TOT RENEWABLE', INCLUSIEF BEZOEK AAN UNIEKE OFFSHORE EXPERIENCE – NIEUWE DATA VOOR 2022 GEPLAND!

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 energie-vraagstuk, 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: € 525,- 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 2021:

- 16 maart • 22 juni
- 14 september • 1 december

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

(foto: Marco de Swart)

IRO KALENDER BEURZEN, MISSIES, CURSUSSEN EN BIJENKOMSTEN 2022

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

12 JANUARI	IRO NIEUWJAARSRECEPTIE GEANNULEERD
1 - 4 FEBRUARI	OFFSHORE EUROPE ABERDEEN, UK
16 MAART	INTRODUCTIECURSUS 'OFFSHORE ENERGIE: VAN FOSSIEL TOT RENEWABLE' ROTTERDAM
8 MAART	BESTUURSVERGADERING N.T.B.
22 MAART	CURSUS OFFSHORE WIND BASICS DOB ACADEMY, DELFT
22 - 25 MAART	OTC ASIA KUALA LUMPUR, MALEISIË
2 - 5 MEI	OTC HOUSTON, VS
23 MEI	BESTUURSVERGADERING N.T.B.
16 JUNI	CURSUS OFFSHORE WIND BASICS DOB ACADEMY, DELFT
22 JUNI	INTRODUCTIECURSUS 'OFFSHORE ENERGIE: VAN FOSSIEL TOT RENEWABLE' ROTTERDAM
23 JUNI	IRO JUBILEUM FOKKER TERMINAL, DEN HAAG
28 - 30 JUNI	SEOGS PARAMARIBO, SURINAME
29 AUG - 1 SEPTEMBER	ONS STAVANGER, NOORWEGEN
13 SEPTEMBER	BESTUURSVERGADERING N.T.B.
14 SEPTEMBER	INTRODUCTIECURSUS 'OFFSHORE ENERGIE: VAN FOSSIEL TOT RENEWABLE' ROTTERDAM
21 SEPTEMBER	CURSUS OFFSHORE WIND BASICS DOB ACADEMY, DELFT
22 NOVEMBER	ALGEMENE LEDENVERGADERING N.T.B.
29 - 30 NOVEMBER	OFFSHORE ENERGY AMSTERDAM
1 DECEMBER	INTRODUCTIECURSUS 'OFFSHORE ENERGIE: VAN FOSSIEL TOT RENEWABLE' ROTTERDAM
7 DECEMBER	CURSUS OFFSHORE WIND BASICS DOB ACADEMY, DELFT
13 DECEMBER	BESTUURSVERGADERING N.T.B.

VOOR DE MEEST ACTUELE INFORMATIE, CHECK DE ONLINE [IRO CALENDAR](#)

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2022



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