BULK TERMINALS *international*

AUTUMN 2024

THE OFFICIAL MAGAZINE OF THE ASSOCIATION OF BULK TERMINAL OPERATORS

CONFERENCE CALL

Insight, innovations and all the news from ABTO Bulk Terminals International conference 2024

RISING TO THE CHALLENGE

The next-generation cranes and grabs meeting environmental goals

PACKING A PUNCH

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COLLABORATION IS ALWAYS KEY

BY SANDRA SPEARES

When groups, associations and companies come together to resolve problems – such as meeting environmental challenges – the results can be transformative for the industry

Concerns have been raised in some quarters about the level of assistance available from central or local governments when it comes to meeting environmental challenges and legislative deadlines.

Some of these challenges remain similar to those that have faced the industry in the past, not least in ensuring that safety and security remain on the top of the agenda.

Many of these issues were on the table at the annual *ABTO Bulk Terminals International* conference in Antwerp, where there were plenty of lively discussions on how to drive change.

One topic that is always a popular one for debate is how much assistance there will be from governments to meet the deadlines.

There have been concerns raised in a number of areas across the globe that port and terminal operators have not had the back-up from governments that they need if they are to meet regulatory requirements within the demanded time frame.

As is the case with other conferences and key events, the annual ABTO conference always offers an unparalleled opportunity for market players to get together to exchange views and come up with group solutions to problems, which you can read all about on pages 7 and 18.

While there may be competition in some areas, there is also an opportunity for collaboration, which will prove advantageous to all concerned.

This edition of *Bulk Terminals International* gives plenty of examples of new initiatives to boost trade, as well as some examples of how groups and associations can move together to resolve problems.

We hope that you enjoy this edition of *Bulk Terminals International* and enjoy reading all about the conference proceedings.

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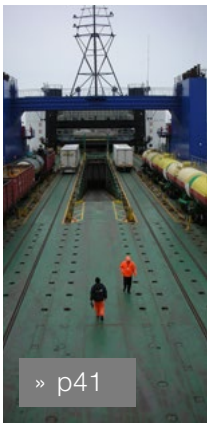
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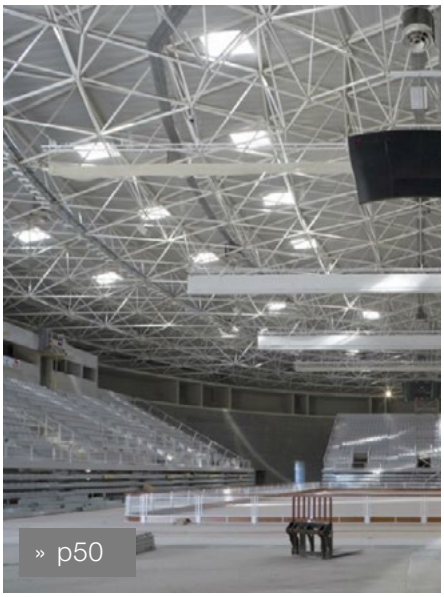
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THE POWER OF GREAT BULK HANDLING

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THE POWER OF INTERACTION

BY SIMON GUTTERIDGE, ABTO CEO

With a packed programme and delegates and experts from across the industry, our annual *ABTO Bulk Terminals International* conference in Antwerp showed how sharing ideas and information can lead to real change

We have all just returned from an insightful couple of days at our annual ABTO Bulk Terminals conference, which took place at the Radisson Blu hotel in Antwerp this year. We are very grateful for the support of the Port of Antwerp-Bruges, the port authority that manages the ports of Antwerp and Bruges (Zeebrugge) since their merger in 2022. Thanks to all their team, in particular Jo Van der herten for her patience fielding my endless questions in the run-up to the conference.

With a full programme of presentations, panels and case studies, the Antwerp conference started with our traditional analysis of bulk markets, continuing with a full programme focused on the concerns of operators – offering sound practical solutions to terminal operators for improving safety and cyber security and streamlining operations, plus ensuring environmental protection and compliance.

Panels on circular economies and green port strategy were ideal subjects to cover in this year's conference, given

that the transition to a circular economy is part the Port of Antwerp-Bruges' ambition to be a climate-neutral port by 2050.

The annual ABTO Bulk Terminals conferences are designed for all those involved in the transportation, storage and handling of bulk commodities. As well as terminals and ports there was number of equipment and service suppliers, professional advisors and academics at the conference. We welcome their presence. Indeed, ABTO feels strongly it is only through the interaction with these others that bulk terminals will achieve the increased operational efficiencies, better security, safety and environmental compliance they need to achieve.

There were plenty of opportunities for that interaction to happen in the ample time provided to network during the course of the conference proper during breaks and discussions. Additionally, in the relaxed and convivial atmosphere of ice breaker drinks in the bar of the Raddison Blu for arrivals on the evening before the event started and then the conference reception at the end of day one at the De Koninck Antwerp City Brewery – sampling Belgium's famously strong artisanal beers – we all enjoyed the opportunity to renew old friendships and make new ones.

The conference rounded off with a highly informative terminal visit on the afternoon of the second day. Our thanks to Kris Dhondt from Euroports for inviting us to visit their Fertilisers and Minerals Terminal.

My thanks to our conference Chairman Professor Mike Bradley, Markets Session Chairmen Rahul Sharan and all of our speakers for their well-received presentations. You can read reports of their presentations from Maritime AMC CEO and former ABTO CEO Ian Adams on page 18.

The conference could not happen without the support of our sponsors, so a big thank you to them. Our regular sponsors **BRUKS Siwertell**, **igus**, **RAM Spreaders** and **TTClub** were joined this year by **indurad** and **Polimak**.

BRUKS Siwertell (*bruks-siwertell.com*) is a market-leading supplier of dry bulk handling and wood processing systems. With thousands of installations worldwide, its machines handle raw materials from forests, fields, quarries and mines, maintaining critical supply lines for manufacturers, mills, power plants and ports.

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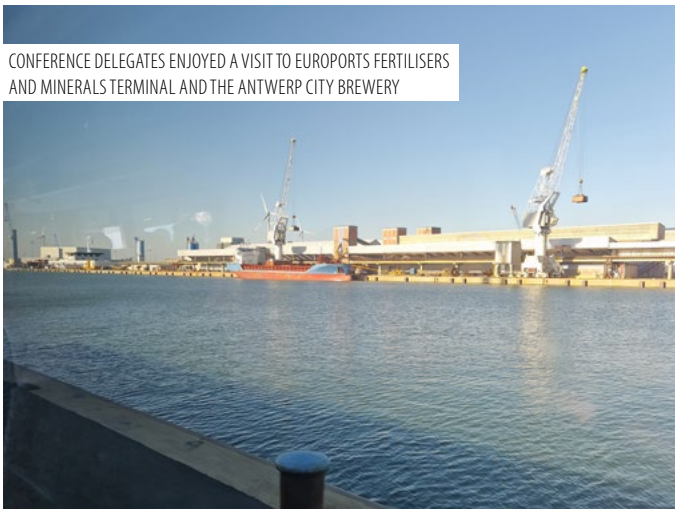
The company is global and local with offices in the US, Sweden, Germany, China, Philippines, Russia and Taiwan, supported by a dedicated network of hundreds of representatives and dealers worldwide.

igus® (*igus.eu*) is a globally leading manufacturer of energy chain systems and polymer plain bearings. The Cologne-based family business has offices in 35 countries and employs 3,180 people around the world. Igus® operates the biggest test laboratory in the industry: 2,750m^2 bring the idea of 'motion plastics®' – polymer machine elements that drive and move – to life. Igus aims to provide customers with the very best product configured for their individual requirements. It also has a predictive maintenance offering.

Indurad (*indurad.com*), based in Germany, specialises in the development and production of 2D and 3D radar sensors, offering advanced solutions for mining and bulk material handling. Radar technology is particularly advantageous as it can penetrate dust, fog, and other obstructions, making it ideal for bulk port operations.

Indurad's offerings range from basic solutions for measuring bulk material flow, hopper levels, and collision avoidance to more complex systems for material tracking, stockpile scanning, stacker reclaimer automation, and even fully autonomous shiploaders and unloaders.

Polimak (*polimak.com*) is a fabrication company specialising in bulk solids handling technologies for more than 40 years. Its expertise lies in developing innovative and efficient



CONFERENCE DELEGATES ENJOYED A VISIT TO EUROPORTS FERTILISERS AND MINERALS TERMINAL AND THE ANTWERP CITY BREWERY

handling solutions for powders, granules, and pellets across diverse industries, including food, chemicals, plastics, minerals, and agriculture.

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One of its standout innovations is the Tilt-less Liner System. Unlike conventional bulk bag methods, this system simplifies the process by reducing handling steps, enhancing safety, and minimising contamination risks. The Tilt-less Liner System loads bulk solids into sea containers with minimal dust and particle degradation, ships them efficiently, and unloads directly into silos or production lines within 15-25 minutes without tilting. This streamlined process eliminates the need for forklifts, reduces labour, and bypasses traditional port bulk handling operations.

RAM Spreaders (*ramspreaders.com*) has been supplying container handling equipment to ports and terminals worldwide for more than five decades, expanding its product portfolio by entering the bulk handling industry a decade ago with its environmentally friendly RAM Revolver Containerised Bulk Handling Solution (RAM CBH).

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TT Club (*ttclub.com*) is the established market-leading independent provider of mutual insurance and related risk management services to the international transport and logistics industry. The Club's services include specialist underwriting, claims management and risk and loss management advice, supported by a global office network.

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The **Port of Antwerp-Bruges** is a critical hub in worldwide trade and industry The second biggest port in Europe with an overall throughput of 271 million tonnes per year, , receiving containers, breakbulk, passengers, rolling stock, liquid as well as dry bulk.

With terminals equipped to receive capesize or panamax ships, the Port of Antwerp-Bruges handles a wide variety both major and minor of dry bulk products, such as energy bulk, minerals, grain, fertilisers and scrap – all with multimodal access.

The port is more than a loading and unloading site for these dry bulk goods. It prides itself on offering such services as blending, liquefying, repackaging and preparation for transport, also specialist storage facilities and the highly efficient transit of goods, with most logistics companies in Antwerp having the AEO-full certificate.

Each year we go to a different port. Where would you like us to go next year? Do drop me a line with your suggestions.

In the meantime enjoy the Autumn edition of *Bulk Terminals International*.

Simon Gutteridge
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WORLD NEWS ROUND-UP

How bulk business has been performing this year has been consistently in the spotlight. Meanwhile, ports are planning ahead to contend with rising emissions regulation

Investors have continued to place bets on the dry bulk market with newbuilding and second-hand activity holding up strongly into the third quarter of 2024.

In its *Q3 Dry Bulk Market* report, Maritime Strategies International (MSI) estimates dry bulk newbuilding orders in the first eight months of the year above 25m dwt, with the potential for further upside on the back of late-reported deals. And despite a slight decline in sale and purchase volumes in August's brief summer lull, second-hand bulker values remain very firm.

MSI expects just over 30m dwt of dry bulk capacity to be delivered in 2024, with the orderbook forecast to rise still further by the end of the year, driven by strong contracting activity seen so far, with 2024 totals expected to hit 34m dwt.

A notable feature of newbuild contracting activity in recent months is the persistent interest in capesize vessels. A total of 4.4m dwt of capesize capacity was ordered during Q2, up by a third on Q1 levels and the highest quarterly total since Q2 2021. By contrast, the relative lack of interest in new handysize vessels has persisted, with Q2 orders just 0.16m dwt.

In the second-hand market, demand for dry bulk ships remains robust, with MSI's assessment of five year old capesize prices staying above $60m, a level not seen in almost 15 years. Prices for older ships are close to their 2022 peaks, with even 18-year-old capesizes selling for more than $20m.

Prices for younger vessels are even stronger, supported by rising newbuild markets. Year-to-date transaction volumes are nearly 25% higher than the same period in 2023.

Over the past three years, newbuild and second-hand price cycles have broadly tracked each other, despite lagging behind the bulker earnings cycle. The latter has had only a marginal effect, slightly advancing the peaks and troughs of older asset values compared to younger vessels.

"A recent softening in year-over-year comparisons for both newbuild prices and vessel earnings could indicate early signs that the second hand market may follow suit," says Plamen Natzkoff, Associate Director, Dry Bulk Commodities and Freight, MSI.

"This suggests that prices may continue to rise year-over-year in the near term, albeit at a slower pace, but could start to decline within six months, implying a peak in asset prices around the end of 2024 and the beginning of 2025."

INSURANCE IMPROVEMENT

Speaking at the recent International Union of Marine Insurance (IUMI) annual conference in Berlin, Germany, Mike Brews, Chairman of the IUMI Cargo Committee reported a sustained improvement for the marine insurance cargo market.

According to IUMI's own analysis, global cargo premiums for 2023 were US$22.1bn, representing a 6.2% increase on the previous year. This increase demonstrated positive market development which has been sustained for a number of consecutive years. Similarly, cargo loss ratios (the total of premiums earned less the amount paid out in claims) were improving across many regions.

In general, loss ratios tend to develop (ie increase) over time but the starting point for 2023 was significantly lower than in previous years. This, coupled with relatively low and stable claims, has created a positive environment for cargo underwriters.

"In general, the cargo market is healthy and in a good place", said Brews. "We appear to be in a good part of the cycle. Losses have improved over the past five years with major losses down year-on-year. It appears that carriers and operators are focusing much more on loss prevention which is good for all concerned, particularly those serving at sea."

However, Brews highlighted a number of areas that require careful monitoring, notably the change in global weather patterns. Major storms were becoming a concern for all insurance classes, but with marine bearing the brunt. Marine cargo losses due to extreme weather events were no longer localised and resultant losses were starting to increase – this included static and in-transit cargoes. Similarly, containers lost at sea were also on the rise.

International conflict continued to be a concern, with cargoes being affected as they transit high-risk areas such as the Red Sea and the Russia/Ukraine war zone. Hijackings were also reported to be on the increase globally.

Accumulation of risk on single vessels or in ports or other shoreside facilities continued to be an issue, but assureds and underwriters were much more aware of the issue than previously, said Brews: "Multiple consignments will always gather in single locations and ever-larger vessels will always carry large high-value cargoes. But today, the market is much more aware of stocks and values and is cognizant of the potential risk. Our knowledge of the issue is so much better and so we can take steps to mitigate that particular risk".

He continued: "Today, insurance companies are paying more attention to their marine business than in recent years. Although marine is usually a small part of the overall portfolio, losses can be significant. Underwriting discipline is improving and companies are focusing on their loss ratios and not chasing business based on premiums alone. This is good news and, as a result, the market appears to be moving in a positive direction".

BARROW DEVELOPMENT

Associated British Ports (ABP) has recently announced ambitious plans for the Port of Barrow, which is designed to drive growth and strengthen the local economy in response to a wave of significant investment coming to the region by 2040 and beyond.

The plan describes how Barrow is poised to take advantage of significant long-term investment, driven by its role in meeting the UK's obligations under the AUKUS partnership and in achieving net-zero emissions by 2050.

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COMPANY NEWS

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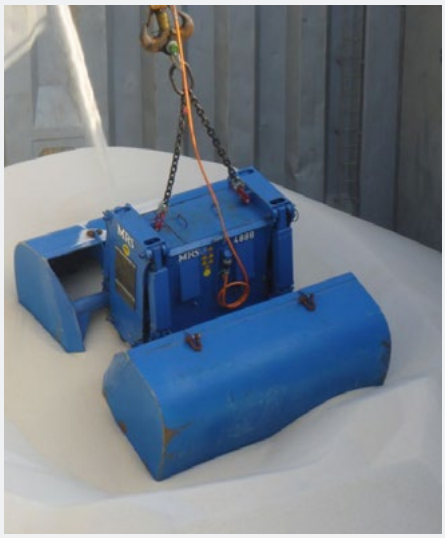


ABP's masterplan will ensure that the Port of Barrow is equipped to meet these challenges by expanding its capacity and capabilities across key sectors.

Bryan Davies, Divisional Port Manager (Northwest and Scotland) at ABP says: "Our masterplan ensures that this development benefits not only the industry, but also the local community and environment, and supports ABP's wider sustainability strategy – ready for tomorrow."

The masterplan sets out three core objectives that position the town as a leader in advanced engineering and renewable energy, while fostering community and environmental sustainability. These objectives focus on delivering growth capacity for:

» the advanced engineering cluster
» the net-zero cluster
» local businesses, communities and environments.

Under the first objective, which aims to help build Barrow's capabilities in advanced engineering, ABP outlines how the port will respond to new demand created by the AUKUS deal, which will make it critical for the port to expand its capacity to support the manufacturing and shipping of submarine sections. ABP has been working alongside BAE Systems to transfer land that will allow a major increase in BAE Systems' production capacity.

Then, ABP will be working on the first major project from the masterplan – the Barrow EnergyDock – which will soon be going to public consultation. This project will set the stage for a significant shift in green energy capacity primarily intended for Barrow's advanced engineering sector. The Barrow EnergyDock floating solar project would be a pioneering initiative designed to meet the growing demand for zero-carbon energy. The project proposes a floating solar array in Cavendish Dock, which can generate up to 32MWp of green electricity, enough to power the equivalent of 10,300 homes each year.

The second objective focuses on how the port will play a role in boosting the UK's wider journey to energy security and net zero. Barrow is home to five operations and maintenance (O&M) bases. ABP is planning for the construction of new O&M bases to accommodate the growing offshore wind sector, along with berths capable of handling larger service operation vessels.

In addition, the masterplan includes new proposals for maritime connections to support hydrogen import and carbon storage. As part of its broader commitment to achieving net zero, ABP has undertaken early feasibility studies on developing a new jetty capable of accommodating incoming gas carrier vessels up to 200m in length and with a capacity of 25,000 cubic metres. This jetty would be an essential piece of infrastructure will help to position Barrow as a key player in the UK's energy transition.

Energy MoU

ABP has recently announced the signing of a memorandum of understanding (MoU) with Clarksons Port Services (CPS). This strategic agreement aims to explore an expanded partnership between the two companies at ABP's new state-of-the-art Lowestoft Eastern Energy Facility (LEEF), which is currently under construction and near completion.

LEEF has been designed to accommodate the evolving demands of the offshore energy industry, including O&M and construction support activities. It is also capable of supporting other seaborne trades, such as aggregate and project cargoes for the civil engineering and nuclear industries, notably Sizewell C.

Paul Ager, Divisional Port Manager at ABP, says: "The LEEF project is a testament to ABP's commitment to investing in the infrastructure required to support the offshore energy sector. With 345m of quayside equipped with three 7.5m draft deep-water berths with direct supply of fuel, water and power, six CTV berths and up to six acres of operational and storage land, the facilities it offers are unrivalled."

David Rumsey, CPS Managing Director, comments: "This is a significant step forward in aligning our support for the development of LEEF to strengthen Lowestoft's infrastructure for renewable energy. It will enhance CPS's capacity to serve its clients in the growing offshore wind sector, bringing economic benefits and opportunities to Lowestoft as the port evolves into a key hub for the energy sector in the Southern North Sea.

The LEEF project is set to position Lowestoft as a critical hub for the offshore energy industry, offering the infrastructure necessary to support the region's growth and sustainability efforts. ABP's investment in LEEF underscores the strategic importance of Lowestoft in the broader context of the UK's energy landscape.

Plymouth development

ABP also recently revealed the completion of a significant phase of works at Millbay Docks, within the Port of Plymouth, which signifies the completion of the first works funded by the UK government as part of the Plymouth and South Devon Freeport seed capital programme.

The strengthening of the West Wharf is a critical component of ABP's ongoing £23m investment in upgrading infrastructure at Millbay, which will help secure the long-term future of the ferry terminal, strengthen the port's freight capability, increase the port's green credentials and grow the offering to the cruise market.

The West Wharf project, which commenced in December 2023, involved the installation of 30 steel tubular piles, which means that the Wharf now has a 60m section capable of accommodating 100-tonne cranes, and therefore significantly increasing the load capacity of the berth.

GOTHENBURG EXPANSION

In August, a brand new 144,000 sq m port terminal was inaugurated at the Port of Gothenburg. The investment, amounting to approximately €60m, has been under construction for the past six years and was made to meet the increased transportation needs of Swedish industry.

"This terminal began planning as early as the 1990s and then we talked about future-proofing. Now that future is here, and this terminal is needed to meet the transportation needs of Swedish industry today, which are also expected to continue growing over time," says Göran Eriksson, CEO of the Port of Gothenburg.

Named Arendal 2, the terminal is also part of the port's strategy to concentrate its terminal operations in the outer port area, further from the city centre, and with direct connections to the port's road and rail infrastructure as well as the local growing industrial cluster.

Parts of the new spaces will be used by Stena Line when the shipping company begins relocating its local operations from its current locations in the central parts of the city to the outer port area. The project has included preparations regarding filling, channelling, and water purification for a future ferry terminal.

"It's still a long way off, but the construction of this terminal has certainly taken Stena Line's relocation into account. Stena Line will use parts of the new terminal area, while other adjacent terminal areas can also be made available in the relocation process," says Eriksson.

In the construction of Arendal 2, 180,000 cubic meters of contaminated materials from dredging in the Göta River have been encapsulated. These materials have been contained, stabilised and solidified to form the foundation of the terminal area, which has then been asphalted.

Already, large parts of Arendal 2 have begun to be used by the terminal operator Gothenburg Roro Terminal, which previously had its operations divided between two different adjacent areas. With Arendal 2, the terminal operator gets a larger contiguous terminal area.

"Overall, Arendal 2 is a solution where the involved actors get even better conditions to conduct their respective operations while the Port of Gothenburg as a whole is further optimised and becomes more competitive," concludes Göran Eriksson.

US CLEAN FUEL FUNDING

The US Department of Energy's (DOE) Office of Fossil Energy and Carbon Management (FECM) recently

announced up to $15m in federal funding to make clean hydrogen a more available and affordable fuel for electricity generation, industrial decarbonisation, and transportation.

Specifically, the funding opportunity will support research and development projects that convert feedstocks – such as coal, biomass, petcoke, household waste, industrial wastes, and waste plastics – into synthesis gas, also known as syngas, to enable the low-cost production of clean hydrogen. The use of low-carbon fuels like clean hydrogen will help achieve the Biden-Harris Administration goal of a net-zero emissions economy by 2050.

"Increasing the use of low-carbon fuels like clean hydrogen in the industrial and power sectors will help meet our ambitious climate goals," said Brad Crabtree, Assistant Secretary of Fossil Energy and Carbon Management. "Advancing technologies that use waste and other feedstocks – coupled with the capture and storage of carbon dioxide emissions – will reduce the carbon footprint and costs to produce clean hydrogen."

Hydrogen can be produced through low-carbon pathways using diverse, domestic resources – including natural gas and coal, coupled with carbon capture and storage; through splitting of water using nuclear electricity and renewable electricity sources, such as wind, solar, geothermal, and hydro-electric power; and from biomass through biological and gasification processes.

Gasification of coal, biomass, plastics, common household garbage and other wastes – coupled with carbon capture and storage to address greenhouse gas emissions – is expected to be a low-cost, low-carbon route to producing clean hydrogen.

The funding opportunity announcement solicits applications in two areas of interest:

» Research and development toward demonstration of entrained flow gasification technologies for alternative feedstocks:
Feedstock preparation and slag handling are of particular importance. The prototype or near-prototype system demonstrated must include and functionally integrate all unit operations that pertain to feedstock preparation, gasification, syngas cleanup and slag handling.

» Research and development toward demonstration of fluidised bed gasification technologies for alternative feedstocks:
Feedstock preparation, tar mitigation for clean syngas production, and ash handling are of particular importance. The prototype or near-prototype system demonstrated must include and functionally integrate all unit operations pertaining to feedstock preparation, gasification, syngas cleanup, and ash handling.

Technology advanced under this funding will support the DOE's Hydrogen Shot initiative, which seeks to reduce the cost of clean hydrogen by 80% to $1 per 1 kilogramme in one decade to enable the commercial development of new, clean hydrogen pathways in the US.

INTELLIGENT TRACKING

Zelim, the Edinburgh-based maritime safety and survival innovator, is cooperating with CASARA, Canada's Civil Air Search and Rescue Association, following the successful demonstration of its ZOE Intelligent Detection and Tracking system. The trials took place in September, in British Columbia, Canada. during the National SAREX 24 Search and Rescue exercise.

CASARA, a volunteer organisation that participates in many of the county's search and rescue missions at sea and on land, tested the AI-enabled ZOE system with its drone capability to better detect persons in the water during realistic ocean search scenarios.

Co-developed with the US Coast Guard, ZOE is an AI-powered search tool designed to autonomously detect and track people and objects in water, in real time. It is notoriously difficult to find people in the water given the vastness of the oceans and waterways, and the fact that casualties can drift quickly and often disappear behind waves, sea spray or light glare. The human eye gets tired, gets distracted and can sometimes miss things.

Since the development of the ZOE system, Zelim has been collecting data across a huge range of search scenarios and weather conditions to train artificial intelligence detection models. This was required to ensure the system would provide an accurate search performance across all types of incidents.

The technology was put to the test during SAREX 24, where drones were flown over a section of coastline that had mannequins floating on the sea surface. As the drone flew over the water on its search, ZOE spotted the mannequin in the water and raised an alarm, drawing the search operator's attention to their whereabouts.

Other objects that were thought to be persons in the water detected by human searchers and other detection methods that rely on frame differencing were correctly ignored by ZOE. These other objects turned out to buoys, lobster pots and light reflections on the water.

Doug Lothian, Zelim's Chief Technology Officer who developed ZOE, explained: "This is what makes ZOE special, the ability of the technology to not only detect but also discern the difference between a human and other objects on the sea surface. Improving the efficiency and effectiveness of search operations, where speed and precision are critical."

Zelim CEO Sam Mayall added: "We're thrilled to have been invited to participate in the Canadian National SAREX and to work with the teams from CASARA and the RCAF to demonstrate ZOE's search capabilities in an operational search. The results of the exercise speak for themselves, and we can't wait to see ZOE being used in a live search, doing what it does best and helping to save lives."

For CASARA, whose SAR operations cover vast and challenging geographies, ZOE represents a potential game-changing addition to their toolkit.

Maj Claude Courcelles, National CASARA Liaison Officer, said: "CASARA is excited to collaborate with Zelim in showcasing our drone capability as well as to explore what AI technology can offer in the prosecution of searches. We look forward to continued collaboration as we both look to improve outcomes for subjects of SAR missions."

Following the success of the trials, Zelim is now working with other organisations in Canda to optimise their search and rescue operations and hopes to deploy ZOE operationally with CASARA in the coming months.

FLEXIBLE TANKS

The International Union of Marine Insurance (IUMI) has published a best practice guide for the safe use of flexible tanks for the transport of liquid cargoes. Its objective is to provide underwriters, brokers and their clients with practical guidance to ensure cargoes transported by flexible tanks arrive intact at their chosen destination.

Flexible tanks – or flexitanks – are poly film bladders that are filled with a liquid cargo (such as dairy products, wine, fruit juice or non-dangerous oils) and then placed into a standard IOS container for transportation.

Explaining the issue, Lars Lange, Secretary General of IUMI said:

"The use of flexitanks has grown significantly in recent years mainly due to reduced transportation costs when compared with a tank container. But this method, if not correctly managed, is easily prone to damage. And once a flexitank is ruptured a total cargo loss usually occurs. This impacts not only on the insurer, the cargo owner and carrier but there is a very real risk of third-party and possible environmental impact as well."

The paper outlines a range of potential risks including poor stowage, incorrect installation, overloading, material deficiencies, transport issues and others. It goes on to highlight the potential impact which might include additional costs incurred over and above the loss of the cargo and consequential damage such as ESG or third-party issues.

Recommendations for safe use and carriage are contained within the main paper and its three detailed annexes. They include:

- selection of flexitanks and containers,
- container preparation,
- installation,
- transportation,
- emergency preparedness.

Checklists covering selection, preparation, installation and loading are also included.

Lars Lange concludes: "One of IUMI's central roles is to gather and share knowledge amongst the international marine insurance community to enhance the safety and efficiency of seaborne trade. These guidelines focus on a specific issue that, in our view, will benefit from a change to current practices so that liquid cargoes transported by flexitanks remain safe and free from damage. My thanks go to IUMI's Loss Prevention Committee and our Professional Partner Battermann & Tillery for compiling such a comprehensive document."

IUMI's "Flexible Tanks for Liquid Bulk Cargo: Recommended Best Practice" paper together with the three annexes are available to download from *https://iumi.com/opinions/position-papers*

RAM: MOBILE BULK HANDLING

COMPANY NEWS

Portable bulk handling systems are becoming increasingly essential across various industries. RAM, which provides its revolver containerised bulk handling system (CBH), believes this is due to its flexibility, efficiency, and adaptability in handling large quantities of material and zero material loss during the handling process.

A well-designed material handling system, such as CBH on a reach stacker, helps improve customer service, lower costs, and reduce the risk of accidents and commodity loss.

While some bulk terminals can cost more than $100m to set up, the RAM Revolver CBH is a fraction of the cost, with less set-up time and a fast-to-market approach, making it an ideal solution for many bulk handling projects. From its tally of CBH projects for mobile harbour cranes, ship to shore, and ship and bridge crane applications, RAM has a total of eight portable CBH projects on reach stackers in Europe, North, Central, South America and China, handling various commodities from iron ore and copper concentrate to pyrite concentrate and UREA for fertiliser production.

THE VERSATILITY OF CBH

By optimising the movement and storage of bulk, CBH avoids the need for expensive infrastructure, storage sheds or stockpiles. It enables the rapid and efficient transfer of bulk materials, such as grains, minerals, and biomass. It minimises handling times, reduces labour costs, and streamlines the process by automating the movement of materials.

This efficiency improves productivity and faster project completion for customers.

For ports, terminals and mining and handling facilities experiencing growth, CBH offers scalability without the need for expensive capital investment in permanent infrastructure. It is especially useful for emerging markets or those with fluctuating demand.

ENVIRONMENTAL BENEFITS

Many industries face space restraints or operate bulk handling operations in remote areas, so fixed installations are not feasible. CBH can operate efficiently in confined or difficult-to-access locations, making it ideal for urban and remote sites. Moreover, CBH is designed to be environmentally friendly by reducing dust generation and minimising commodity loss by containerising the bulk in sealed open-top containers. The commodity only sees the light of day when decanted at its final destination, with an added dust suppression system reducing the amount of dust plumes.

RAM believes the growing demand for portable bulk handling systems is driven by its ability to enhance operational flexibility, efficiency and safety while reducing costs. The handling and transportation of large volumes of material are crucial to success; with the industry's ability to prioritise adaptability and cost-effectiveness, the role of portable bulk handling will only increase, providing solutions that can easily be tailored to the specific needs of any operation.

BULK TERMINALS 2024 ROUND-UP

BY IAN ADAMS

A look back at two days packed with industry insight and information

The much-anticipated Bulk Terminals Antwerp 2024 conference was a resounding success, full of insight on a far-reaching range of subjects and thoughtful opinion from industry experts – as well as plenty of opportunities for networking.

The event opened with a warm welcome from **ABTO Chief Executive Simon Gutteridge** (see page 7 for his overview of the conference), expressing thanks to the sponsors for their support and welcoming delegates old and new. Then it was over to conference chair Professor Mike Bradley from the Wolfson Centre for Bulk Solids Handling Technology. He highlighted the significance of dry bulk – without which no goods would exist – and emphasised the importance of health and safety within the industry.

Jo Van der herten, Key Account Manager, Port of Antwerp-Bruges Bulk Terminals gave an introduction to the Port of Antwerp-Bruges, explaining how the port encourages growth within the region, but also works to ensure that the port is fully integrated with the surrounding community.

Then began a series of insightful sessions on bulk markets, chaired by **Rahul Sharan, Deputy Director – Bulk Research, Drewry**, who introduced **Dr Wouter Jacobs, Executive and Academic Director Erasmus Commodity and Trade Centre, Erasmus University Rotterdam**. Dr Jacobs spoke on the topic of bulk markets' vulnerability to wars and political disruptions, highlighting 'VUCA' – volatility, uncertainty, complexity and ambiguity. He discussed the impact of war and geopolitics on the availability of commodities, pointing out the effect of maritime choke points such as the Panama and Suez canals, and the Red Sea. He also highlighted tension around Taiwan, showing the areas of Chinese military operations.

Moving from geopolitics to geo-economics, Dr Jacobs then looked at how the drive to decarbonise is currently affecting markets:"This leads to a 'trilemma' of security, affordability and sustainability, which in turn becomes a political problem," he said. One example he discussed was the amassing of critical raw materials, such as China's purchasing of cobalt.

Sharan then gave a presentation on major bulk trades, highlighting the fact that the two biggest trade routes are Australia to China and Brazil to China. "China contributes nearly 45% to the major bulk imports, playing the most significant role in the total dry bulk trade, with its role remaining equally crucial in the coming five years," he said. The anticipated decline in demand for iron ore due to the increased use of electric arc furnaces to produce steel from recycled steel has not materialised because the demand for steel has increased more than anticipated, he explained.

China has now started to import coking coal from Mongolia since the opening of a new railway between the two countries. This has reduced the amount of coking coal that China imports from Australia and so reduced the demand for seaborne trade.

Shifting the focus to grain P**rofessor Indra Vonck, Partner, Maritime and Transport Business Solutions (MTBS)** and **Vrije Universiteit Brussels** told the meeting that the fundamentals for the grain trade remain strong. "Economic growth is steady, with inflation declining and commodity prices falling along with demographic growth and with technological change relatively stable," he said. As far as seaborne trade is concerned, he predicted that there will be an undersupply of vessels during 2024, which will maintain the freight rates. However, he said, 2025 will see an oversupply of shipping, which could result in a downward pressure on the market. He also pointed out that Brazil has for the past couple of years become the largest supplier of grain after years of the United States being the dominant supplier.

There followed an overview of biomass by **Gilles Gauthier, Research and Business Development Manager, Hawkins Wright**, who explained the various types of biomass that are transported by sea, from lignocellulosic (wood) biomass and agribiomass, and include firewood, wood briquettes, wood pellets and wood chips. The primary use for all these different forms of biomass is the generation of power and, increasingly, on the domestic market for heating.

The session concluded with a presentation by Rahul Sharan on an overview of minor bulks – waste, fly ash and aggregates. He explained how the dry bulk market saw a supercycle between 2004 and 2008, which resulted in an overbuilding of vessels leading to depressed freight rates for the next decade. Nearly 20% of dry bulk Handysize and Handymax vessels were estimated to have a Carbon Intensity Indicator 'E' rating – the lowest – in 2023. These vessels will be required to undergo retrofitting of energy-saving devices and/or propulsion improvement devices and/or voyage optimisation or switch to low-zero carbon alternative fuel. The solution can potentially be a combination of different options, Sharan said, although some of the vessels may have to be scrapped as the retrofits may be uneconomic depending on the charter market conditions.

The speakers then answered questions from the audience, with a great deal of interest being shown in the issues surrounding biomass, with also plenty of discussion on the geo-political situation in the Middle East and Ukraine.

After lunch, the conference moved on to a session on operations. Progress towards bulk terminal automation was presented by **Nick Chubb, Managing Director, Thetius**. "The key challenges terminals face today include manual processes and record-keeping, the absence of automation and standardisation, a lack of system integration and cyber security," he said. Together, these are hampering the digitisation process.

What is containerised bulk handling (CBH), **Frank van Laarhoven, Senior Sales Manager Europe, RAM**

Spreaders asked the conference. Traditional bulk handling systems run a high risk of material loss during the handling process, he explained. "This is not only damaging to the environment, but also money blowing in the wind," he said. Containers prevent the loss of materials when being handled as the dust generation is greatly reduced.

Hanne Geelen, Country Manager Belgium, Igus provided a brief overview of the company, which produces high-performance polymers for movement, before **Tobias Batzdorf, Shore Power Manager** at the firm gave a presentation on latest developments in the electrification of terminal operations – cold ironing and harbour machinery. "The movement towards supplying shore power is driven by concerns about health, specifically particulate matter (PM) produced by ships auxiliary generators running when in port," he said. The use of shore power helps to reduce PM and reduces greenhouse gas emissions and noise both above and below the waterline. While there exist standards for the provision of shore supply to container vessels, passenger ships and roro pure car and truck carriers, there is not standard for dry bulk terminals at present, he explained.

An interesting case study followed on Glencore terminal application of radar technology, by **Dr Christian Augustin LLM, Managing Director, indurad GmbH**. He explained how the radar technology can see through dust and suppressant mist, demonstrated using a video to show the technology in action. He also gave examples of where collision avoidance technology resulted in better operational performance and demonstrated how all these technologies have been combined in use at the Glencore facility.

The day's proceedings finished with a general discussion on the circular economy, with panellists **Michael Akkermans, Commercial Manager Port Operations, Katoen Natie, Yves Bosteels, General Manager Dry Bulk Division, SEA-invest and Kris Dhondt, Commercial Director Belgium, Euroports Belgium NV**.

A lively evening reception took place at De Koninck Antwerp City Brewery, which was preceded with a tour of the brewery.

Day two began by turning the focus on the environment, opening with a session on developments in maritime decarbonisation and getting ports to net zero, by Nick Chubb of Thetius. He provided a framework for decarbonisation, emphasising the need to plan the process thoroughly and ensure that the low-hanging fruit are the first actions taken. "Detect the source(s) of emissions," he said. "This is required to obtain a clear and quantifiable view of how to move forward with your emissions reduction strategy."

Continuing the sustainability theme, **David Ingvarsson, Sales Manager, BRUKS Siwertell AB**, examined environmental gains from advances in technology, highlighting ship unloading operations. "High operational efficiency means the ships can be unloaded faster," he said. "A quicker turnaround reduces berth occupancy and increases berth utilisation, as well as reducing personnel requirements."

A panel discussion followed on the options for a green port strategy, featuring **Arne Strybos, Program Manager Fuel Transition, Port of Antwerp-Bruges; Maarten Boot, Policy Advisor, FEPORT; Karin Smit-Jacobs MSc, Director EU Transport and Energy, Conference of Peripheral Maritime Regions (CPMR);Tobias Batzdorf; Nick Chubb**; and David Ingvarsson. The discussion looked to the future regarding green initiatives, with considerable time looking at future fuels for mobile equipment, with hydrogen featuring quite highly.

The rest of the day turned the spotlight on cyber security, safety and risk. **Richard Hodder, CEO, Pelion Consulting**, gave an update on the latest cyber risks and what protective measures companies need to take, highlighting several of the most recent cyber attacks in the maritime industry including the one experienced by Lisbon Port. 'Mitigating evolving threats means adapting to the future, collaboration, enhanced defences and employee knowledge," he explained.

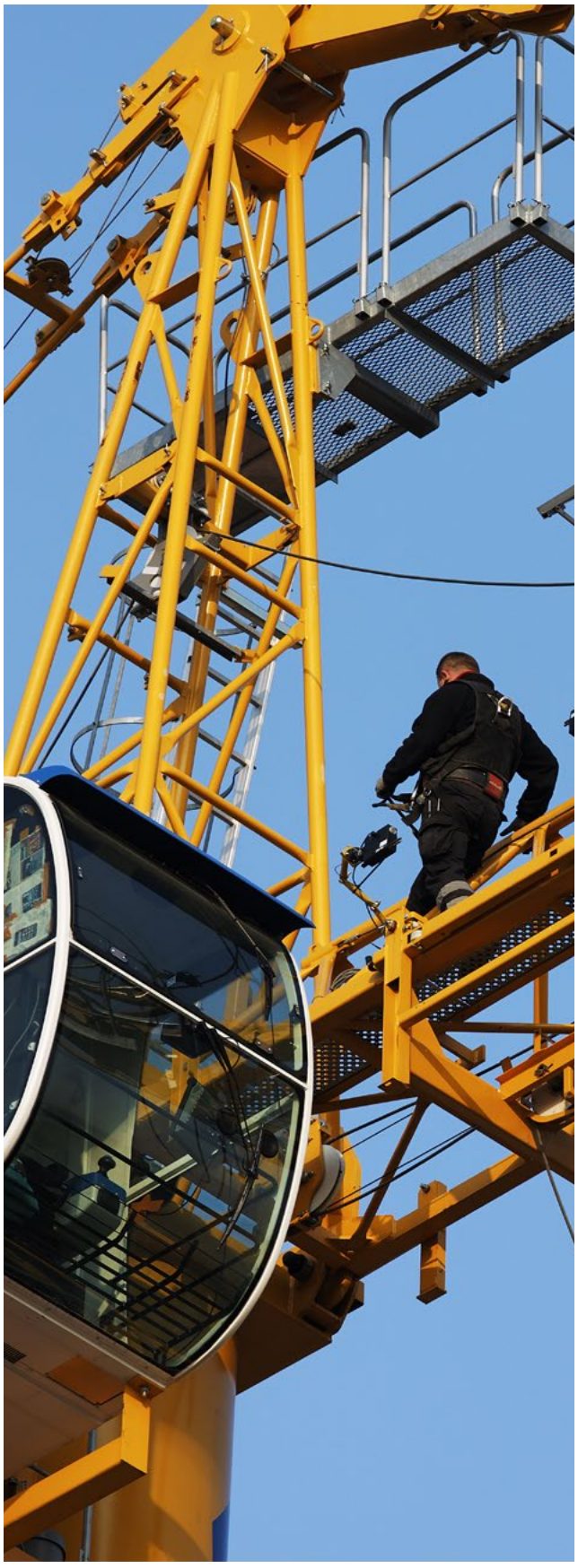
The spotlight then turned on to risk management. **Neil Dalus, Risk Assessment Manager, TT Club** explained to the conference the concept of risk management and how risk can be mitigated to reduce the likelihood of it affecting a business. "The TT Club's mission is to make the global transport and logistics industry safer, more secure and more sustainable," he said.

Finally, Richard Steele, CEO, the International Cargo Handling Coordination Association International, looked at innovations in safety technologies. He showcased the TT Club Innovation in Safety Awards programme, which has enabled new ideas to be demonstrated. The innovative entries spanned 15 countries and included Associated British Ports virtual reality port safety induction and training; CM Labs Simulations port equipment simulation training solutions; Euroports Group HQ, Antwerp- Belgium Line of Fire program; and Flint Systems Virtual Reality Training Simulator.

The second day finished with a visit to Euroports' Fertilisers and Minerals Terminal, with a tour of the state-of-the-art facilities.

Delegates and speakers alike thoroughly enjoyed the conference. As **Kristoffer Alm, Bruks Siwertell** said "The Antwerp conference was really good. Great networking opportunities" and Colin Dunn, PD Ports "Good mix of presentations". Another port delegate thought the "Industry sector experts were well received and very knowledgeable".

We look forward to seeing you in 2025.



RAISING THE BAR

Coming up with new designs and applications for lifting equipment in ports is key to efficient running of those facilities, not least in an environment where alternative power use is increasingly important

Global engineering, heavy lifting and transport company Mammoet recently launched the world's strongest land-based crane, the SK6000.

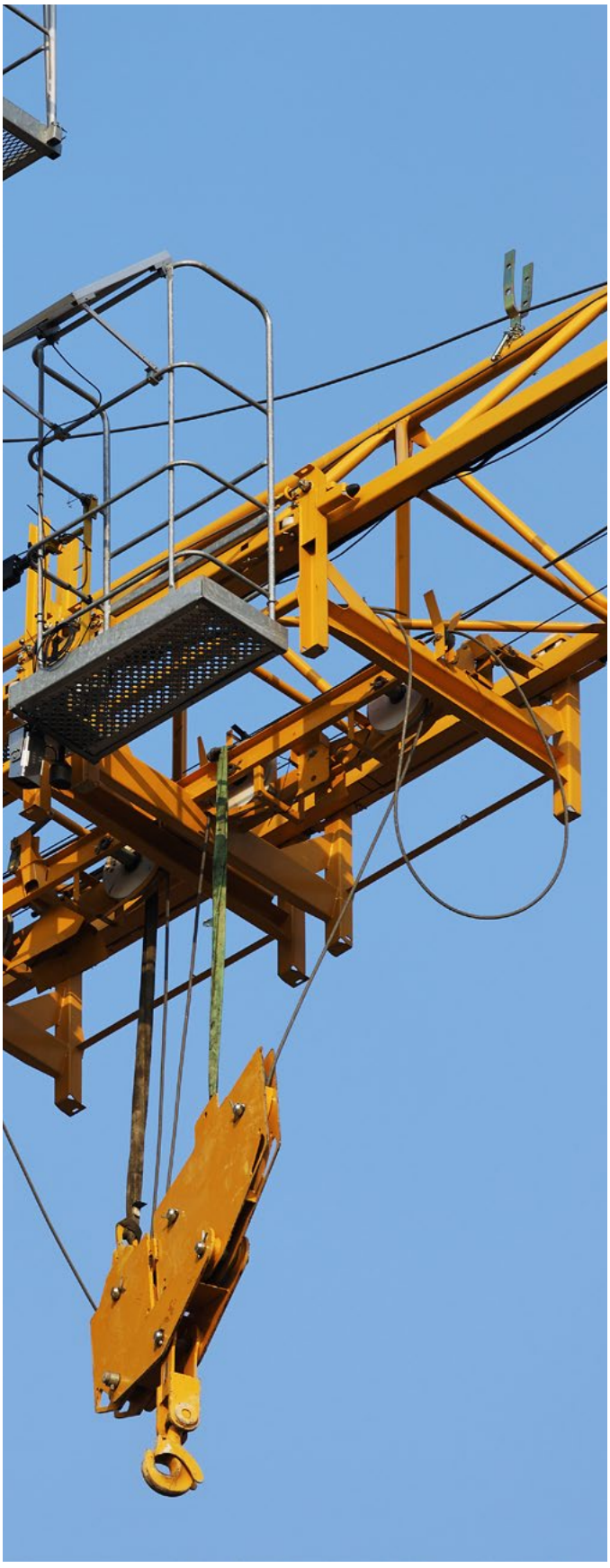
The SK6000 allows large energy and infrastructure projects to build from bigger pieces, in parallel – reaching first power sooner, and more cost-effectively.

The SK6000 has a key role in offshore wind, where fast growth of components in recent years has led to supply chain issues. Lifting 3,000t to a height of 220m, the SK6000 ensures that wind farms in the planning phase today can be safely executed and delivered in the future.

In the oil and gas sector, the SK6000 delivers reduced integration times to offshore floating projects, while onshore new build and expansion projects can be delivered with increased uptime. Both scopes then benefit from modular construction techniques that allow critical path components to be simultaneously built offsite anywhere in the world, before transporting to site ahead of installation.

As more new-build nuclear plants are greenlit, the SK6000 helps the sector to benefit from similar tried-and-tested construction methodologies – helping projects to reach completion sooner and deliver low carbon energy to communities.

The SK6000 has a maximum capacity of 6,000t, utilising 4,200t of ballast to lift with a maximum ground bearing pressure of 30t/m^2. The crane design uses containerisation techniques for ease of deployment, and can be transported using shipping containers to any location worldwide.



It also offers full electric power capability from battery or supply from the grid, allowing customers to reduce the carbon impact of projects significantly.

"This crane is truly a world record feat of engineering, with a production schedule to match", says Gavin Kerr, Director Global Services at Mammoet. "Hundreds of colleagues have been directly involved with its development across the business."

Mammoet also recently announced the launch of the Mega Jack 10000, a new addition to its heavy lifting portfolio. The new system provides 10,400t of lifting capacity per tower – upgraded from 5,200t currently – without increasing the footprint of the tower base.

This means that less steel is required to support structures as they are lifted, and the heaviest lifts will be able to start metres closer to ground level.

> "This crane is truly a world record feat of engineering, with a production schedule to match

Moreover, as the system's capacity per tower has doubled, fewer towers will be needed to lift larger loads. This means smaller foundations are needed – further enhancing both scheduling and costs.

The Mega Jack 10000 introduces a revolutionary five-metre jacking beam with three connection points, allowing for load distribution across eight Mega Jack base units: four at the corners of the tower, and four at the center of each side.

Large jacking projects require starter beams, which are used to connect these jacking towers together and distribute the load. For example, if two Mega Jack 5200 towers are connected by a starter beam, they will be able to lift a load of 10,400t.

One Mega Jack 10000 tower can lift this weight on its own, meaning that lifts that would formerly require starter beams of two towers' width may now only need one. So supporting steel can be smaller, thinner and require less engineering to develop.

This also reduces the lift's starting height, making access easier and meaning smaller cranes are needed to complete projects.

MAJOR PORT PROJECT

Incheon New Port, located 40 kilometres west of Seoul, South Korea, is undergoing a major expansion as part of the Incheon New Port Stage 1-2 project. This development aims to increase the port's capacity and upgrade its facilities to accommodate growing cargo volumes and larger container ships.

Upon completion, the new container terminal is expected to boost the port's handling capacity to five million teus by 2030, with the terminal anticipated to be completed by 2025.

Gwan-Ak Co was appointed to carry out the dredging work and construction of the lower structure of Incheon New Port's Stage 1-2 container wharf. Established in 1998, Gwan-Ak Co is a South Korean company specialising in a range of construction services, including underwater construction, dredging, reinforced concrete work, earthworks, scaffolding dismantling, and boring grouting.

Gwan-Ak's Sennebogen 6300 E plays a vital role in the construction of the container wharf. The offshore crane is engineered to lift and manoeuvre heavy materials with precision, enabling rapid assembly to maximise operational efficiency.

After the completion of the dredging phase, the crane's precise load handling capabilities are utilised. From offshore, the duty cycle crane lifts and positions the heavy-duty concrete framework mould used to create the port apron. Once in their designated positions, the moulds are then assembled and filled with concrete. The crane operates for eight hours a day, with work sometimes dependent on weather conditions. It has high lifting capacities of up to 300 tons. Its hydraulic lifting system and advanced control mechanisms ensure heavy materials are accurately and efficiently placed.

Mounted on a barge and equipped with a 2.5m pedestal mount and 46.7m length boom, this crane is Gwan-Ak's first crane purchase for its own use. It was delivered in 2023 and assembled in South Korea. This marks a change from the usual practice in Korea, where offshore cranes are typically 20 to 30 years old, secondhand and often sourced from Japan.

THOROUGH INSPECTION

Alatas Turkey's engineering team recently completed a thorough inspection and maintenance of a vessel's hydraulic deck cranes.

Alatas had been contacted to provide a comprehensive inspection and maintenance of cranes to ensure full operational status. This included adjustments to limit switches, oil leak repairs, pressure adjustments, gearbox oil renewal, and internal leak detection. They also requested brake strength testing and inspection of sheaves and bearings to address any potential issues.

The Alatas Turkey engineering team made several key recommendations and performed targeted repairs. They adjusted limit switches, renewed gearbox oils, conducted internal leak detection for hydraulic motors, and tested brake strengths. They also recommended emptying and cleaning hydraulic oil tanks, flushing the system, and inspecting or replacing sheaves and bearings as necessary.

Alatas Turkey's engineering team met with the superintendent to discuss the job scope and plan the next steps. They inspected the limit switches on one crane and found that all required maintenance, including adjustments and replacement of defective switches. They recommended repairing oil leaks and adjusting pressures during load tests as per the load table values.

The team identified the need to renew gearbox oils and analyse the old oils. Internal leak detection was conducted for all hydraulic motors.

Due to ongoing port operations, brake tests could not be performed. Measuring brake strengths and replacing necessary components are still required. Previous hydraulic oil analysis showed high metal parameters, leading to recommendations to empty and clean the hydraulic oil tanks and flush the system.

Inspection of the hook block, jib head hoist, and luffing sheaves was not possible due to ongoing port operations. The recommendation was to dismantle and inspect these components and replace bearings or sheaves if necessary.

NEMAG: GRABBED BY INNOVATION

COMPANY NEWS

Nemag, an international leader in the design and construction of four-rope mechanical grabs and rope connection systems, is celebrating its 100th anniversary.

"Together with our customers, we strive to improve their bulk handling a little more each day," says Martine Dekker-Grootveld, Co-owner and Sales Manager at the Netherlands-based designer and manufacturer of the world's most efficient dry bulk grabs. This is, in a nutshell, what sets Nemag apart, she says. "We always ask ourselves: how can we do better?"

This attitude is emblematic of Nemag, which is also known for its rope pear sockets and quick-release links, providing the fastest and safest rope connection systems. The 100-year-old family business from Zierikzee, a town in Zeeland near the ports of Rotterdam and Antwerp, is recognised not only for its high-quality standards, but also for its warm, long-lasting customer relationships.

"We continuously evaluate customer feedback and experiences," says Dekker-Grootveld. "This helps us better understand how to further improve the performance of our products."

The importance of this cannot be overstated. "With the right grab, you can increase efficiency, becoming more productive at lower costs."

CLOSE COLLABORATION

Take the NemaX, a new generation grab already considered a game-changer in the industry. The NemaX is lighter, allowing for more bulk to be handled, and has fewer moving parts, requiring less maintenance. Additionally, it uses a significantly shorter cable, speeding up the handling process. Dekker-Grootveld says: "Customers know that saving a few seconds per cycle brings enormous cost benefits over a year."

Initially, the NemaX was developed for iron ore pellets. Thanks to close collaboration with an enthusiastic early adopter, the Nemag team made adjustments to the basic design. Today, the NemaX is also used for other materials such as limestone, blast furnace sand, bauxite, aggregates, minerals and concentrates. For all bulk materials with a density greater than 1.4 t/m^3 and a grain size less than 50mm, the NemaX shows better performance. The design also lends itself for transshipment using floating cranes.

At SMT Shipping, handling speed increased from 1,000 to 1,250tph. "The NemaX paid for itself more than four times in its first year," says Marc Smeets, Technical Project Manager at SMT Shipping. Other customers report productivity increases of between 10% and 25%, compared with clamshell and scissors grabs with similar specifications.

A GAME-CHANGER IN THE INDUSTRY

Working in close alignment with customers has earned Nemag several industry and non-industry awards for innovative designs. The awards, including various International Bulk Journal awards and the Red Dot Award, fill the team with pride. "Competing with other renowned manufacturers and then taking home such prestigious awards is just fantastic – a wonderful recognition of our hard work," says Dekker-Grootveld.

FROM IDEA TO PRACTICE

The drive to enhance performance is also evident in partnerships with research institutions and universities. Long-term studies involving research and testing in both laboratories and the field have been providing valuable knowledge for Nemag's own products, as well as for existing and new customers. Ever more often, Nemag is regarded as a knowledge centre, offering advice on streamlining logistics processes.

Mechanical engineer Niels de Vries, who graduated from the renowned Delft University of Technology with simulation models on the interaction between cranes and grabs, is proud of the mutual collaboration. "The lead time from idea to practice is really short here," he says. "We can quickly see the tangible result of creativity."

According to de Vries, this is because the office and factory hall have traditionally been near to each other. In recent years, when a new ultra-modern office was built for Nemag, the architect ensured that the design encourages seamless collaboration between colleagues, fostering a strong team spirit. "Contact between office and production is very close," Dekker-Grootveld says, "so as a team, we can respond and adapt very quickly."

LOOKING AHEAD

Much has changed since Abraham Grootveld laid the foundation in 1924 for the international company that Nemag is today. Initially, he repaired everything from tools to stoves. Due to the proximity of the port of Rotterdam, he focused more on machine construction. While repairing grabs, he noticed inefficiencies, so he started to tinker and see how grabs could offer a better balance between weight and grabbing capacity – work that he would continue to refine.

Since those early years, transportation has not stood still. However, Nemag's pursuit of continuous improvement in dry bulk handling remains unchanged. The team maintains close contact with terminals and crane builders worldwide to provide tailored solutions for their specific needs.

Dekker-Grootveld is a granddaughter of the founder. "Nemag has come a long way by always looking ahead. We feel an obligation to respond to new challenges in our field," she says. Now, as the modern family business is led by the third generation, the focus is still on the future. "Our drive to keep improving is deeply embedded in our DNA." This is what gives Nemag confidence in a rapidly changing world. "Our passion for performance will carry us into the next century."

NEMAG AT A GLANCE

Nemag is the internationally renowned designer and manufacturer of the most efficient and innovative grabs and rope connection systems for dry bulk handling at terminals worldwide. It works with a concern for quality, reliability, safety and the environment.

For more information, visit: nemag.com

WORKING IN CLOSE ALIGNMENT WITH CUSTOMERS HAS EARNED NEMAG SEVERAL INDUSTRY AND NON-INDUSTRY AWARDS

BEUMER GROUP: JOIN THE PORTZONE COMMUNITY

COMPANY NEWS

The *PortZone* live webinar series, produced by BEUMER Group, is a knowledge resource for port and terminal professionals interested in the latest trends and innovations in dry bulk handling. Designed to address the evolving challenges of port operations, the series explores how advanced technologies and solutions can improve efficiency, safety and sustainability.

Port operations are increasingly driven by the need for faster, more reliable and environmentally conscious solutions. The *PortZone* community focuses on these key areas in the form of webinar-like discussions with experts from the industry on navigating industry challenges. Serving as an open forum, *PortZone* facilitates inspiring topics, technological advancements and knowledge exchange among industry experts. Featuring an external guest speaker from the industry in every episode, it invites you to engage and learn from some of the brightest minds in the ports and terminals industry.

AUTOMATION: TRANSFORMING PORT OPERATIONS

Automation is a major theme in *PortZone* webinars, offering insights into technologies transforming port operations. Past episodes have explored digitalisation in shipping to improve operational processes, collision prevention systems for equipment such as shiploaders and smart mooring technology to enhance vessel stability. The series delves into leveraging key performance indicators such as overall equipment effectiveness to optimise terminal operations. Participants learn about software solutions that optimise vessel arrival schedules, reducing wait times and increasing throughput with just-in-time arrivals, challenging the traditional 'first come, first served' approach. Simulation tools for improving terminal performance and managing capacity are also highlighted, providing valuable knowledge for enhancing efficiency.

SUSTAINABILITY: REDUCING ENVIRONMENTAL IMPACT

Sustainability is another critical focus, recognising the pressure on ports to reduce environmental impact. *PortZone* addresses strategies for achieving net-zero fugitive dust emissions and solutions for maximising fertiliser storage capacity while minimising the environmental footprint. Episodes cover the challenges and solutions for implementing shore power in dry bulk terminals and introduce tools such as the Maritime Emissions Portal to reduce vessel emissions.

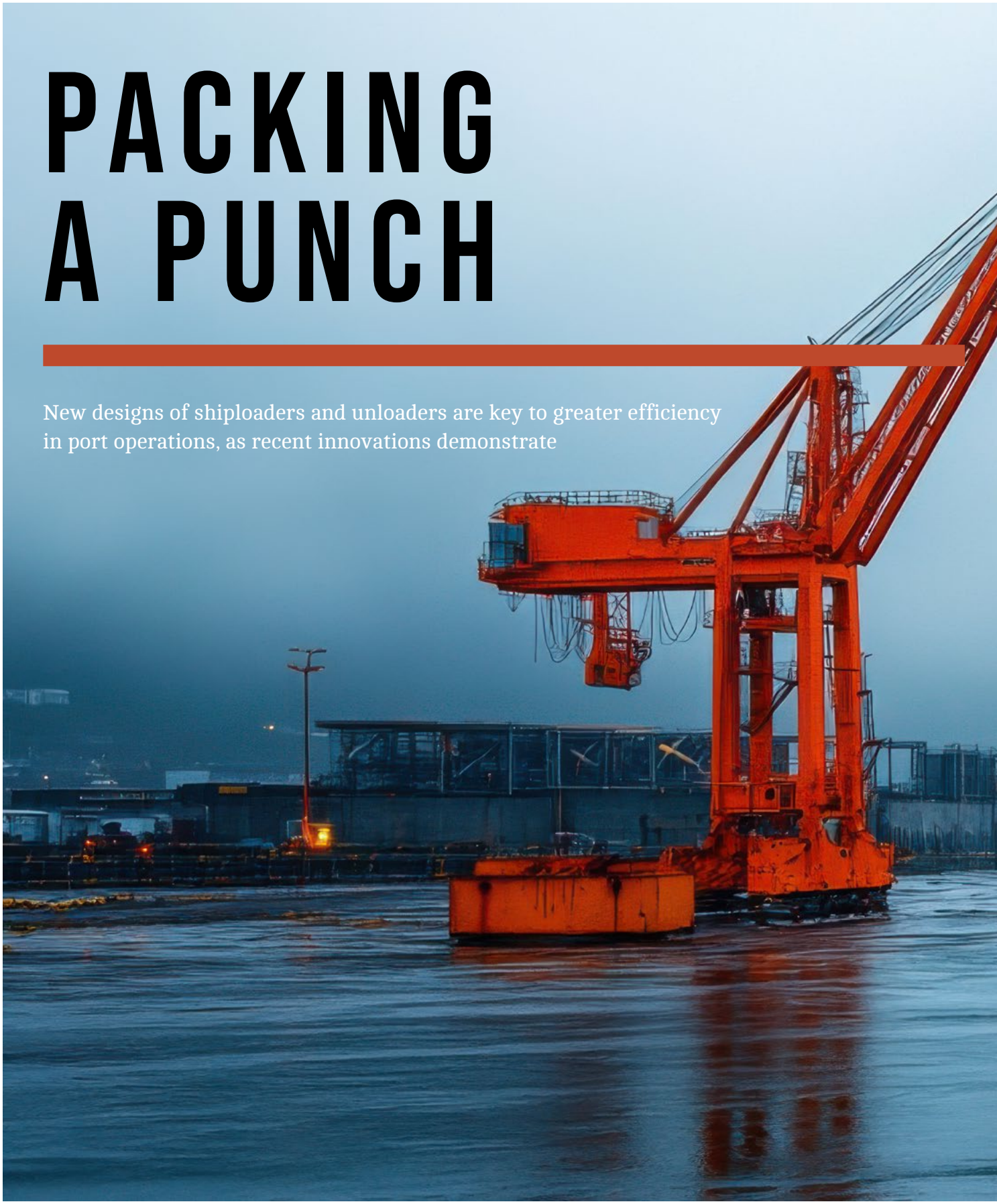
The series is a knowledge-sharing resource for best practices in dry bulk handling to enhance safety and efficiency. By engaging with these topics, industry professionals gain insights into reducing emissions, improving energy efficiency, and aligning with environmental standards – all while enhancing operational performance. The *PortZone* live webinars emphasise education and knowledge sharing, providing actionable insights for professionals looking to enhance their port or terminal operations.

To join the community and link to previous and upcoming episodes of Beumer Group's *PortZone*, scan the QR code below:

BEUMERGROUP

PACKING A PUNCH

New designs of shiploaders and unloaders are key to greater efficiency in port operations, as recent innovations demonstrate



Superior Industries, a US-based manufacturer and global supplier of bulk material processing and handling systems, has revised the design of its popular Conveyor Impact Cradle. The new and improved arrangement includes larger pad cartridges to enhance durability and a reinforced point of connection between the pads and cradle frame.

According to Superior's engineers, the Conveyor Impact Cradle is a modern redesign of the traditional impact bed. While both products absorb the force of falling material to prevent damage to conveyor belts, the Impact Cradle is specifically engineered to address common shortcomings associated with the design of traditional impact beds:

- Curved bed fully supports belting, leaving no gaps to trap fugitive material
- Pads are easy to slide on or off cradle frame in tight, hard-to-access transition zones
- No special tools required, which speeds installation and maintenance
- One-piece pads made from a special urethane to reduce friction and enhance cushioning

In addition to these redesigned features, Superior's Impact Cradle is newly available in two more pre-engineered models: medium and heavy duty are now available, in addition to the standard model, which was first introduced to conveyor owners in 2017.

BRUKS SIWERTELL SIGNINGS

Bruks Siwertell has completed the installation and commissioning of a second screw-type ship unloader for leading Indian fertiliser company, Paradeep Phosphates (PPL).

The new Siwertell ST 640 D-type ship unloader joins a similar Siwertell unit at the port of Paradeep, in Odisha, India. PPL's first unloader was delivered in 2006 and was part of the port's environmental transformation.

"PPL has very high expectations of Siwertell technology," says Bengt Svensson, Senior Contract Manager, Bruks Siwertell. "The delivery of our original Siwertell ship unloader, almost two decades ago, saw PPL switch from open-air sulphur handling with grab cranes, to safe, fully enclosed, dust-free operations. It transformed the port environmentally and was a significant step-up in efficiency.

"To keep up with demand, PPL needed to increase capacity, but wanted to do this in the most sustainable and environment-friendly way possible, leading to the second order," he adds.

PPL, part of the KK Birla Group and the OCP Group of Morocco, is a major manufacturer of phosphatic fertilisers and is Asia's second largest producer of diammonium phosphate, sourced from its plant close to the port.

The new rail-mounted ST 640-D ship unloader operates on the same jetty as Bruks Siwertell's previous delivery for PPL, and similar to the first unit, has the capacity to discharge sulphur from vessels up to 60,000dwt in size, at a rated capacity of 1,500t/h. It alternates handling this cargo with rock phosphate at a rate of 1,200t/h and muriate of potash at 1,050t/h.

Both units, like all Siwertell ship unloaders that handle sulphur, are fitted with the Siwertell Sulphur Safety System (4S), which was first developed more than 30 years ago to minimise the risk of explosions when handling this extremely volatile and corrosive dry bulk material.

In open-air handling systems, such as grab cranes, the flammable and explosive nature of sulphur is not so much of a problem, but becomes an issue for enclosed systems. However, sulphur should be contained, and its dust minimised, as it is damaging to the environment.

Siwertell ship unloading systems equipped with 4S technology are uniquely able to offer totally enclosed sulfur handling, reducing any risk to personnel, equipment, vessel and port to the minimum possible levels.

Libyan contract

Bruks Siwertell has also secured an order for a Siwertell ship loader type-1A from Libyan Fertilizer Company (LIFECO). It is designed to offer reliable, efficient, high-capacity urea handling at the operator's facilities in Marsa al Brega in Libya, and will be fitted with the latest digital advances to enable remote support.

"Per Hansson, Sales Director EMEA and LatAm at Bruks Siwertell, says: "It is low in weight and can be seamlessly integrated with existing infrastructure, optimising a port terminal's operation for minimiszed installation costs.

"LIFECO is a new customer for us, and we are delighted that it recognised the benefits of our technology in an open bidding process," Hansson continues. "The Siwertell shiploader proved to be an ideal fit for the fertiliser handling operation, and our responsiveness and dedication to overcoming some of the current challenges with travel and delivering dry bulk handling equipment to Libya was essential."

The new Siwertell shiploader will have a travel length of 185m, enabling it to accommodate both large and smaller vessels. It offers a continuous rated urea loading capacity of 1,000t/h, and will be installed on an existing quay, integrating with the present jetty belt conveyor and tripper.

"LIFECO predominantly receives long, large vessels, making our shiploader an ideal choice," explains Hansson. "We designed the lightest possible loader to fulfil LIFECO's strict requirements. The results mean that, not only will it be able to offer a significantly longer travel length, at approximately 210 metric tons including counterweight, it will also be much lower in weight than equivalent-sized systems."

The new shiploader will be delivered fully assembled from Turkey towards the end of 2025, and will include an enhanced operator training package, incorporating instructions on how to take delivery of the system from the heavy-lift vessel. Advanced digital features include Bruks Siwertell's augmented reality glasses and an Industrial Internet of Things device, enabling the equipment, and the operator, to be remotely supported, especially during commissioning and start-up.

Ash operations

Another order for a next-generation Siwertell 5 000 S road-mobile ship unloader is to support the environment-friendly handling of fly ash for an American operator. It is destined for service in the port of Houston, Texas, promising to deliver highly efficient, reliable fly ash ship unloading with minimal dust emissions and zero spillage.

"This operator is looking to capitalise on the distinct advantages that our Siwertell road-mobile technology can deliver to very dusty dry bulk handling sectors, such as fly ash," says Jörgen Ojeda, Sales Director Mobile Unloaders, Bruks Siwertell.

The next-generation road-mobile mobile ship unloader is scheduled for delivery to the operator in mid-2024, fully assembled and tested from Bruks Siwertell's premises in Bjuv, Sweden. It will discharge fly ash from smaller barges, up to 5,000dwt, at a rated capacity of between 200 and 225t/h, ensuring an efficient, totally enclosed conveying line to minimise dust emissions and eliminate spillage.

Cementing the deal

Bruks Siwertell has also completed the commissioning of an ST 490-M Siwertell ship unloader for Kuwait Portland Cement Co. It was installed on a jetty in

Shuwaikh Port, Kuwait City, Kuwait, next to the operator's existing rail-mounted ST 490-F Siwertell unit, which has been securing efficient, environment-friendly material handling for over two decades.

The ongoing performance of Kuwait Portland Cement Co's original Siwertell ship unloader was one of the main reasons why the operator opted for a second unit. The new rail-mounted ship unloader handles various cement types and delivers a continuous material handling capacity of 800t/h, discharging vessels up 80,000 dwt.

Both unloaders are designed to operate in Kuwait's extremely hot climate. To accommodate predicted temperature rises in the region, the latest unit can withstand ambient summertime temperatures of up to 55 degrees Celsius.

"Commissioning the new ship unloader in these very high temperatures was a challenge," notes Bengt Svensson, Senior Contract Manager, Bruks Siwertell. "However, we overcame it, and have now completed the installation and operator training. The new unloader has passed its performance tests, fulfilling the operator's expectations.

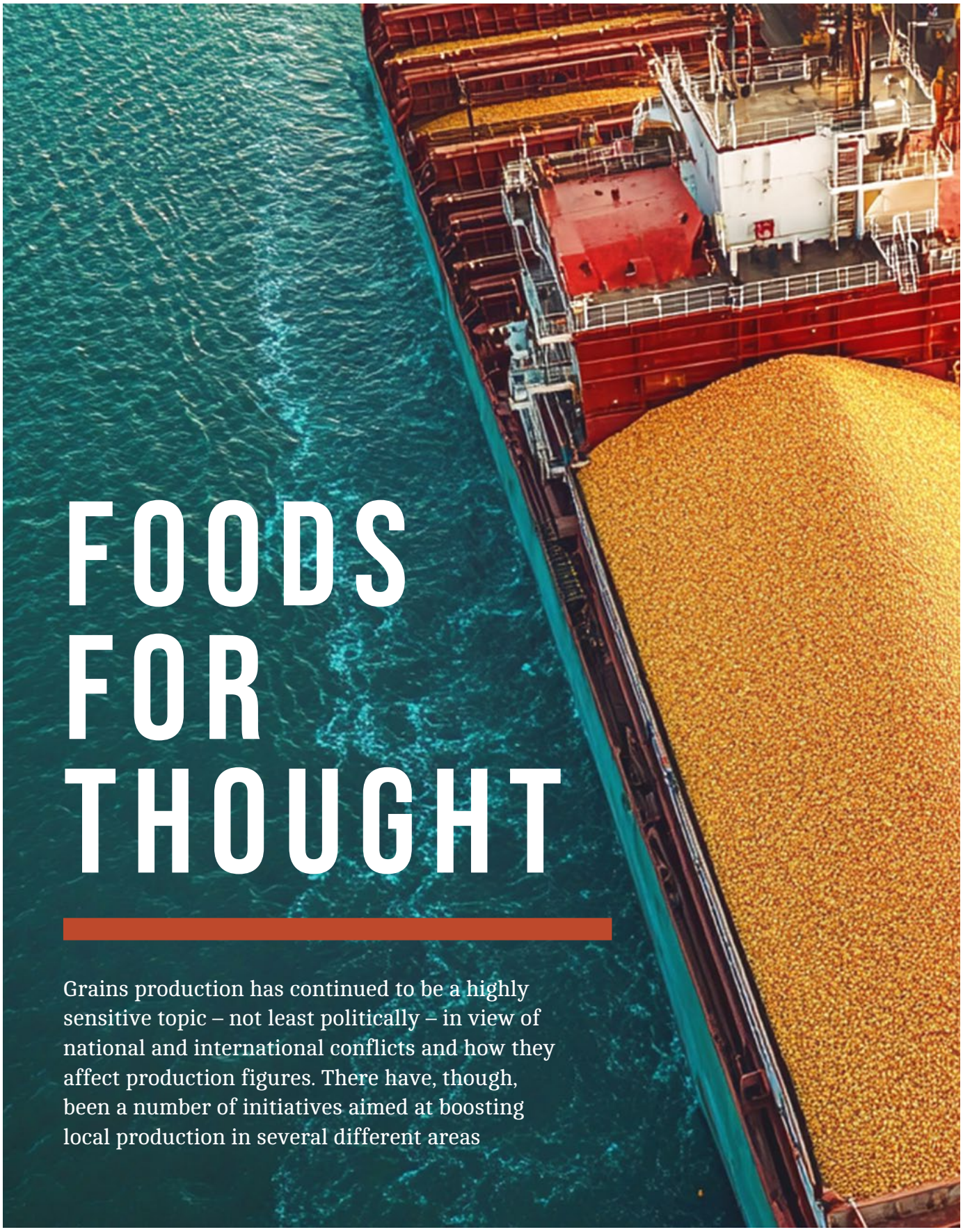
"Kuwait Portland Cement has benefited from over 20 years of experience using our Siwertell screw-type technology, and we hope that the new unit will bring many more," continues Svensson. "The operator also knows that it can rely on our ongoing service and support. In fact, with two similar models, it will benefit from shared spare parts and maintenance strategies."

The new unloader features a new side tilt motion, which offers an enhanced reach into the corners of the cargo hold as well as under the hatch coamings. This additional maneuverability means that even less material is left for the clean-up phase, which reduces vessel turnaround times, raising the utilization rate of the jetty and therefore profitability.

Furthermore, all Siwertell unloaders offer a layer-by-layer unloading process, which minimises the chance of airborne emissions from avalanches in the cargo hold. The side tilt function adds to this capability.

Both the current and new unloader are also equipped with a total capacity regulating system, maximising the use of each unit, and ensuring that they do not overfill the downstream conveying system.

They can also directly discharge to bulk trucks via a truck loading arrangement underneath the ship unloader's gantry. This configuration increases the flexibility and efficiency of the operation.



FOODS FOR THOUGHT

Grains production has continued to be a highly sensitive topic – not least politically – in view of national and international conflicts and how they affect production figures. There have, though, been a number of initiatives aimed at boosting local production in several different areas

According to recent grain market reports by ADHB, a major indicator in grain markets is the spread between wheat and maize prices. Recently, global wheat prices have risen to levels not seen since mid-June. On 2 October, Chicago wheat futures (Dec-24) rose 14.7% to $226.1/t, up from an all-time low of $192.9/t on 26 August.

During the same period, Chicago maize futures (Dec-24) rose more slowly, by 18.11/t. This expanded the spread by $15.1/t, from $40.7/t to $55.8/t.

The surge in wheat prices was driven by a mix of factors, including ongoing droughts in key producing countries, export restrictions, geopolitical tension in Ukraine and the Middle East, and higher global demand, the association says.

At the moment, a combination of weather risks and robust global demand is supporting wheat prices. However, competitive exports from the Black Sea have long capped price rises. Weather forecasts indicate a dry week ahead in the Russian and US winter wheat belts, while heavy rain is expected France.

According to the US Department of Agriculture's demand estimates the outlook for 2024/25 US wheat in October is for reduced supplies, larger domestic use, unchanged exports and lower ending stocks.

The global wheat outlook for 2024/25 is for reduced supplies, consumption, and trade but slightly higher ending stocks. Supplies are reduced 1.9m tons to 1,060.3m primarily on reduced production for the EU, Russia, India, and Brazil.

Declines in supplies were only partially offset by higher production for Ukraine and larger beginning stocks for Russia. Global consumption is reduced 2.4m tons to 802.5m, with lower food, seed, and industrial use in India and Afghanistan.

World trade is decreased 0.7m tons to 215.8m on reduced exports by the EU that are partly offset by an increase for Ukraine.

This month's 2024/25 US corn outlook is for smaller supplies, larger exports, and reduced ending stocks. Projected beginning stocks for 2024/25 are 52 million bushels lower based on the Grain Stocks report.

October's 2024/25 foreign coarse grain outlook is for lower production, smaller trade, and essentially unchanged stocks relative to last month. Foreign corn production is forecast down with declines for Ukraine, Egypt, Russia, and the Philippines partially offset by an increase for India.

Ukraine and Russia are lowered based on harvest results to date. India is higher as a reduction in area is more than offset by a higher yield forecast. Foreign barley WASDE-653-2 production is down with cuts for Russia, the EU and UK partly offset by increases for Argentina and India.

Major global coarse grain trade changes for 2024/25 include lower corn exports for Ukraine and Russia with an increase for the US. Corn imports are reduced for China and Iran, but raised for Egypt and the Philippines.

The outlook for 2024/25 US rice in October for slightly larger supplies, unchanged domestic use and exports, and slightly higher ending stocks. Supplies are raised on higher production as imports are unchanged.

The 2024/25 global outlook this month is for higher supplies, consumption, trade and ending stocks. Supplies are raised 5.6m tons to 710.3m, primarily on larger beginning stocks and production for India, where production is raised to a record 142.0m tons. An above-average monsoon season and more rice planted at the expense of cotton are factors behind the record output.

World 2024/25 consumption is raised 0.6m tons to a record 528.1m tons on increases in several countries more than offsetting a 1.0m ton reduction for India. Global 2024/25 trade is 2.2m tons higher at 56.5m on larger exports for India, which are raised 3.0m tons to 21.0m. India's exports are higher on the removal of several export restrictions, including its export ban on non-basmati white rice at the end of September. Exports for Pakistan, Thailand, and Vietnam are all reduced with the removal of India's export ban. All these exporters had larger exports for 2023/24, mostly in response to India's export restrictions.

> An above-average monsoon season and more rice planted at the expense of cotton are factors behind the record output

BÜHLER DEVELOPMENT

Bühler, in collaboration with Flour Mills of Nigeria , has opened a grains application centre in Nigeria dedicated to processing local and ancient grains. This sustainable and transformative commitment was made based on the need to address food insecurity, not just in Nigeria, but progressively across the African continent.

Today around 2.3bn people in the world live in food insecure conditions, according to the Food and Agriculture Organization (FAO) of the United Nations. With their specific advantages, local grains such as sorghum and millet can play a vital role in improving food security, particularly in Africa.

Use of these raw materials is at a low level today, and processing is not developed. To address this challenge, Bühler is opening a dedicated Application and Training Centre with research and development capabilities in Kano, Nigeria, together with its founding partner, Flour Mills of Nigeria, and its collaborating partners, such as Olam Agri.

The main goal is to bring industrial processing of these grains to the next level and thereby contribute to affordable nutrition. "Sustainable food value chains utilising local grains are the number one priority to develop Africa," says Johannes Wick, CEO of Bühler's Grains and Food segment.

"In addition to improving the food value chain, we see great business opportunities with a new category of processed food," says John Coumantaros, Chairman of the Board of Flour Mills of Nigeria. Commenting on the foreseeable impact of the Application and Training Centre, he stated: "FMN has always been at the forefront of driving food self-sufficiency in Nigeria and progressively across the continent. The application centre is well positioned to sustainably develop local grains, create business opportunities, and provide viable alternatives to some imported raw materials used in production. Therefore, this partnership further demonstrates our consistency in developing local content and in our commitment to feeding and enriching lives, every day."

Local grains and crops offer many benefits and are therefore a key tool in improving food security. They have high nutrient density with valuable vitamins, minerals, proteins, and fats, are climate tolerant and able to withstand high temperatures and arid conditions, and require less fertiliser and pesticide than other grains.

"With these characteristics local grains are ideal plants to be cultivated in Africa, specifically under the conditions of accelerating climate change," says Ali Hmayed, Head of Bühler's new Grain Processing Innovation Center (GPIC) in Kano. The main reasons these local grains and crops have not yet been integrated into industrial solutions are complex, ranging from low farming volumes and short shelf life to a lack of process knowledge and equipment. Together with its partners, Bühler is now taking a major step to break through this blockage and is open to further collaborations.

The GPIC is a three-floor building spanning an area of 480 square meters, housing pilot-scale production facilities, research and development labs, and classrooms. The production facility includes all steps of processing, from cleaning and sorting to dehulling, tempering, and milling. The heart of the plant is Bühler's high-compression AlPesa grinding system. The GPIC will empower customers, researchers and partners to collaboratively explore cost efficient food processing solutions for local grains such as sorghum, millet, maize, soybeans and other local crops such as cassava, different types of beans, nuts and seeds.

In close collaboration with the Bühler African Milling School in Nairobi, Kenya, the GPIC also offers training and education courses on local grains and their advantages and requirements in cultivation and processing. Additionally, this new Application and Training Center will enable Bühler to optimise its processing portfolio for local grains in terms of both performance and cost efficiency.

The GPIC is embedded in Bühler's global network of 25 Application & Training Centers. The first series of trials with customers has already been agreed upon.

One key reason for the challenging food situations in Africa is that many regions of the continent are strong importers of grains, mainly wheat and rice. This makes them vulnerable to trade disruptions and foreign exchange rate fluctuations.

"Local grains offer many opportunities, not only to increase food security but also to generate new jobs in agriculture and adjacent markets, as well as enabling countries to become more independent from imports," states Ali Hmayed.

The transformation of the food supply chain in Africa will not happen overnight. "This requires concerted efforts across numerous sectors, including agriculture, processing, recipe development, end-product innovation, and consumer engagement," says Coumantaros from Flour Mills of Nigeria.

"Together with our partners, we at Bühler are happy to now contribute to this system change with the aim of ensuring that more people in Africa have access to affordable and healthy food, thereby reducing hunger and malnutrition," says Bühler's Wick.

UNLOADER CONTRACT

Bruks Siwertell has won a continuous screw-type ship unloader contract to support the operations of a major grain handler in the Philippines. The Siwertell ST 640 M-type ship unloader was ordered to deliver efficient, environment-friendly malt and grain handling in the Filipino port of Luzon.

"We have a number of Siwertell systems serving various dry bulk handling operations in the region, and our ship unloaders are especially well known for the unique advantages that they offer to grain handlers," says Ola Jeppsson, Sales Manager, Bruks Siwertell. "Operators know that they can rely on Siwertell technology to deliver the market's highest through-ship capacities, whilst ensuring that grains and agri-bulk are handled carefully, so that material degradation is minimal. This ensures shipment quality for sensitive cargoes like these.

"We are delighted to continue serving the grain handling sector, and with several new terminals planned in the Philippines, we are hopeful that many more operators will benefit from the unique capabilities of our ship unloading equipment," he adds.

The new installation has been designed with the region's climate in mind. "This is a climatically challenging environment," Jeppsson explains. "Port equipment in the area has to be robust enough to withstand seasonal typhoons and earthquakes. Furthermore, this new ship unloader will be installed on a particularly exposed jetty, and will be able to discharge vessels from both sides."

The screw-type Siwertell ship unloading system will offer a continuous rated capacity of 800t/h for handling malt and other grains. It will be delivered fully assembled to the port via heavy-lift ship in the third-quarter of 2025.

VIGAN ENGINEERING: LIFTING THE LOAD

COMPANY NEWS

Headquartered in Nivelles, Belgium, VIGAN Engineering SA has emerged as a formidable force in the bulk handling industry, boasting more than five decades of trailblazing expertise. With an unwavering focus on delivering cutting-edge solutions for dry bulk products, particularly agricultural commodities such as cereals, VIGAN has cemented its status as a premier equipment provider on the global stage.

Beyond its stronghold in Belgium, VIGAN's impact reverberates across the globe, with its equipment installed in ports spanning continents. With an impressive 99% of its business exported, VIGAN has established an extensive global presence, delivering innovative handling solutions to ports worldwide. Vigan's track record is impressive, with 1,500 machines all over the world. From the bustling ports of Europe to the remote shores of Asia and Africa, VIGAN's footprint underscores its commitment to meeting the diverse needs of the international maritime community.

DIVERSE PORTFOLIO

VIGAN's diverse product portfolio encompasses an array of handling solutions tailored to meet the unique requirements of different ports worldwide. From grain pumps to pneumatic ship unloaders and complete turnkey solutions for port terminals, VIGAN offers versatility and reliability unparalleled in the industry.

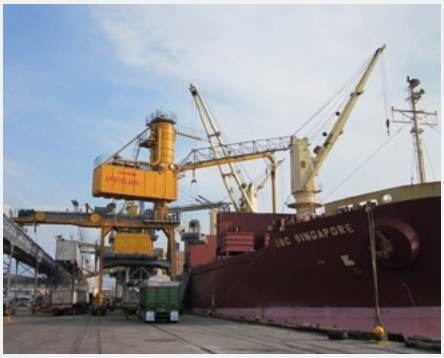
Grain pumps: VIGAN's grain pumps, characterised by their compact and mobile design, are engineered for quick deployment at various locations. Continuously evolving, these machines have become remarkably efficient, reaching impressive peak outputs of up to 250 tonnes per hour. They offer a smart solution that facilitates swift implementation without requiring substantial investments in heavy mechanical equipment.

Pneumatic and mechanichal ship unloaders: VIGAN's pneumatic ship unloaders are the cornerstone of its portfolio. These gantries are versatile, coming in both stationary and mobile configurations (rails or tyres) These highly efficient machines are designed to rapidly and with minimal environmental impact offload dry bulk products from ships. They can handle substantial loads, with capacities reaching up to an astonishing 800 tonnes per hour, while the mechanical unloaders push the limits even further by achieving throughputs of up to 1,500 tonnes per hour. VIGAN's unloading systems utilise pneumatic suction technology to minimise dust emissions, meeting stringent environmental standards.

Loaders: VIGAN's loaders present a versatile solution suitable for a wide range of bulk products, whether handling large or small barges and vessels. VIGAN loaders are meticulously customised to accommodate diverse needs. The loading process is mechanised, with cargo efficiently conveyed into the loading boom through an integrated belt or chain conveyor. Subsequently, it is discharged into the ship's hold via a telescopic loading chute.

VIGAN prioritises the design of loaders with high-volume capabilities to minimise the

necessity for equipment and component replacements caused by wear and tear. These shiploaders are engineered to achieve impressive capacities of up to 2,000 tons per hour for various types of products. VIGAN proposes multiple layout options, including fixed, tyre-mounted, and rail-mounted gantries, with flexible height and width configurations, customised boom lengths, a variety of loading spout types, dust control systems, control cabins, and the option for static or rotating throwers.



Terminals: VIGAN's expertise extends to complete port terminal solutions. It provides turnkey projects, including the design and implementation of entire bulk handling systems within port facilities. These terminals are designed for maximum efficiency, reliability, and environmental compliance.

ENVIRONMENTAL DUTY

In an age where environmental consciousness reigns supreme, VIGAN leads the charge in sustainability within the bulk handling sector. Through the integration of cutting-edge technologies such as multi-stage turbo blowers and inverter technology, VIGAN significantly reduces power consumption in its pneumatic unloaders. This enables automatic power regulation based on demand, fostering more efficient energy usage while minimising its ecological footprint. Moreover, VIGAN's dedication to mitigating noise pollution and minimising dust emissions underscores its commitment to environmental stewardship, setting the standard for environmentally conscious bulk handling solutions.

UNMATCHED QUALITY

VIGAN's commitment to excellence extends beyond innovation to encompass meticulous craftsmanship and quality control. Unlike competitors reliant on subcontractors, VIGAN's vertical integration approach ensures complete control over every aspect of operations, from design and calculation to shipping :

- Complete design and calculation of the machine
- Manufacturing and assembly of the mechanical structure and the equipment
- Preparation, coating and protection
- Instrumentation and control development and installation
- Electrical drawing and enclosures manufacturing

By pre-assembling and rigorously testing each machine in their factory, VIGAN upholds the highest standards of reliability and performance, earning the trust of clients worldwide.

TECHNOLOGY AND DURABILITY

While embracing technological advancements, VIGAN exercises caution to prioritise durability and availability. It's no mere coincidence that we have some machines operating continuously for more than 40 years in challenging environments, consistently exceeding customer expectations.

With a steadfast focus on durability and operational availability, VIGAN prioritises ensuring uninterrupted performance when its machines are most needed. The company exercises vigilance, adopting new technologies only after rigorous testing for durability and user-friendliness.

A prime example of this dedication is evident in VIGAN's establishment of a specialised department dedicated solely to the design and production of electronic and electrical components. From fundamental electrical panels to intricate wiring systems, VIGAN distinguishes itself as the industry's singular player with such a dedicated department. Since its inception, this department has witnessed continuous expansion, underscoring VIGAN's unwavering commitment to advancement. Seamlessly integrated within the company, this department exemplifies expertise in crafting premium electrical and electronic components, directly contributing to the reliability and exceptional performance of VIGAN Engineering's equipment.

As VIGAN unveils a new generation of continuous ship unloaders boasting increased capacity, the company underscores the paramount importance of preserving durability and availability. Scaling up machine size necessitates addressing various factors, such as turbine dimensions, piping diameters, and air-lock capacities. VIGAN has adeptly navigated these challenges in recent times, showcasing its agility in responding to evolving industry demands.

SHAPING THE FUTURE

Looking ahead, VIGAN's vision encompasses a future characterised by innovation, sustainability, and global collaboration. By staying true to its core values of reliability, excellence, and customer satisfaction, VIGAN aims to continue pushing the boundaries of bulk handling technology while fostering a more sustainable and interconnected maritime ecosystem. With a legacy of pioneering achievements and a steadfast commitment to progress, VIGAN stands poised to shape the future of the bulk handling industry for generations to come.

For more information, visit: vigan.com

HARD FACTS

Coming up with bulk cargo solutions that also tick the boxes as far as environmental issues are concerned continues to be key working practice

Cemex Egypt has announced the inauguration of cutting-edge decarbonisation equipment at its Assiut cement plant. This technology, designed and built by local engineering teams, marks a significant milestone in the company's commitment to sustainability and environmental stewardship, and forms part of its Future in Action strategy.

The new equipment transforms residues into energy by utilising energy from the current process, combined with a high-efficiency separator and modifications in the calciner process.

This system and operational modifications achieve approximately 32kg of CO_2 reduction per ton, equivalent to 290,000 tons of CO2 annually. Cemex says this reduction is comparable to removing 69,000 gasoline powered passenger vehicles every year.

Additionally, Cemex annually turns 500,000 tons of municipal waste into energy to operate the Assiut plant, equivalent to the total waste generated yearly by a city with 1.3m inhabitants.

Cemex's Future in Action strategy aims to lead the industry in climate action by achieving carbon neutrality. The strategy focuses on reducing CO_2 emissions, increasing the use of

alternative fuels, and enhancing energy efficiency across all operations.

"The inauguration of the decarbonisation equipment at the Assiut plant is a testament to our ongoing efforts to create a more sustainable future for our communities and the planet," says Yago Castro, President of Cemex Egypt and UAE. "We are committed to leading climate action in the industry, using the highest alternative fuels substitution rate in the cement industry in Egypt."

By 2030, Cemex plans:

- To be below 430kg of CO_2 per ton of cementitious material, equivalent to a 47% reduction.
- To reduce the carbon content per cubic meter of concrete to 150kg, equivalent to a 41% reduction.
- To reach 65% in clean electricity consumption by 2030.
- To reduce Scope 3 transport emissions by 30% by 2030.
- For Vertua lower-carbon products to account for majority (50%+) of cement and concrete sales by 2025.

Cemex has also signed a joint venture agreement with recycling service provider ALBA to produce biochar, a carbon-neutral fuel derived from biomass. The use of biochar, alongside a planned carbon capture project on site, will allow the capture of biomass CO_2 for storage and the production of sustainable aviation fuels.

The biochar plant, named ALCE, will be the first of its kind in Europe in terms of size, capacity, and strategic location in Cemex's Rüdersdorf cement plant. This fully-automated facility will process and recycle organic waste into carbon-neutral alternative fuels, reducing the use of fossil fuels in cement production. Due to its potential to sequester CO2, Cemex is also testing the incorporation of biochar into its concrete mixtures to further reduce their carbon footprint.

"Rüdersdorf is one of the most modern cement plants in the world, and with this joint venture, we are making significant progress in transforming the plant into our first carbon-neutral cement facility by 2030," says Fernando A González, CEO of Cemex. "This joint venture is another important milestone in achieving our ambitious 2030 decarbonisation goals."

The ALCE plant is expected to begin operations at the end of 2026.

In 2023, alternative fuels accounted for 37% of Cemex's fuel mix, setting a company record for the third consecutive year. Cemex's European plants have set the standard for alternative fuel consumption, reaching rates above 70% in Czech Republic, Germany, and the UK, and above 90% in Poland.

> "We are making progress in transforming the plant into our first carbon-neutral cement facility

AIUK'S SUPER SHED

As part of a long-term plan to support increased demand for cementitious products across the UK construction market, Aggregate Industries (AIUK) has recently announced a significant investment into a new 'super shed' at the Port of Liverpool.

Owned by the UK's second largest port operator Peel Ports Group, the substantial new import facility – one of the largest of its kind in Europe – will facilitate the storage of more than 40,000 tonnes of cementitious products at any one time.

AIUK has made a long-term commitment to the Port with the signing of a 25-year lease agreement. This represents the third major deal made by the manufacturer in the past six months, as part of a strategic investment programme into deep sea terminals.

The latest investment will help the business maintain a continuous supply of lower carbon cementitious solutions throughout the North of England and Wales, with the addition of two surrounding berths and a two-chamber flat store at the portside. This will help accommodate larger vessels and improve overall transport efficiencies.

With each import investment strategically chosen to support the firm's regional logistics infrastructure, this growth in distribution capability will help Aggregate Industries to offer best in class service to local customers – with minimal lorry miles from terminals to sites – for the ultimate in sustainable, agile, secure supply.

Head of Supply Chain at AIUK's Cement Division Matt Owen says: "Our commitment at Liverpool is one of a series of planned developments to respond to increasing market demand across the surrounding regions.

"By investing in deep sea facilities, we're looking to streamline operations as well as reduce the embodied carbon in our imported products, saving up to 25% of CO_2 per tonne of material thanks to increased vessel capacities.

"Our investment in the port is indicative of the key role freight is playing in helping us to build resilience and surety of supply for customers, so we can always respond in an agile way to customer demand."

Tom Harrison, Group Strategic Accounts Director at Peel Ports Group, says: "This significant investment highlights AIUK's long-term commitment in driving growth and opportunities across the Port of Liverpool and we're proud to be involved in seeing it come to fruition.

"At Peel Ports, we believe we're more than just a port, but central to enabling a more agile, efficient and sustainable supply chain for the UK's industries by offering port-centric solutions such as this to help our customers thrive

"Providing these facilities, which enables AIUK to better serve the industry across North of England and Wales with its cementitious solutions, is a prime example of this."

BAGS FOR LIFE

Rapidpack and RMG Group reveal the benefits of today's state-of-the-art bagging systems, with advantages ranging from real-time data tracking to easy integration into busy ports

Toronto-based Rapidpack, which designs, engineers and manufactures state-of-the-art bulk cargo handling, bagging, and processing equipment for ports, trading houses and shipping companies globally has outlined some of the bagging solutions it has provided for ports in East and West Africa.

Here, the company says, "advanced bagging solutions are transforming cargo handling. Innovative machines are setting new standards in productivity and efficiency across key ports, from Mombasa to Lagos. They are reshaping how cargo is managed and handled, ensuring smoother operations and faster turnaround times."

The company says that mobile bagging machines are instrumental in modernising port logistics. "Their ability to streamline various stages of cargo handling makes them essential in today's fast-paced port environments.

"Whether it's managing bulk commodities or diverse products, these machines ensure that ports operate at peak efficiency."

Advantages include flexibility, mobility and durability. Features improving port efficiency the company says include:

» **Automated operations:** many modern models include automation features that enhance precision and speed, reducing the need for manual labor and minimizing human error.
» **Real-time data tracking:** advanced models offer real-time data tracking, allowing port managers to monitor operations and make informed decisions.
» **Environmental considerations:** Some machines come with eco-friendly features, such as reduced energy consumption and improved waste management systems.

African ports face several challenges, including congestion and high operational costs and mobile bagging solutions can benefit from the point of view of economic impact, sustainability and job creation, the company says.

EFFECTIVE OPERATIONS

RMG Group says that bulk bagging equipment is an essential part of operational effectiveness. The company offers a wide range of bulk bagging systems that can be integrated into almost any environment, designed to meet different operational demands:

Features such as user-friendly interfaces, automated controls, and smart sensors contribute to seamless operations and minimal maintenance requirements.

Industrial environments can be harsh, and equipment needs to withstand the most abrasive materials and rigorous use. The company makes its bulk bagging systems to last, using high-quality materials and robust construction techniques. This durability ensures long-term performance and reduces the need for frequent replacements or repairs

RMGroup's bulk bagging systems are versatile and adaptable, making them suitable for a wide range of industries:

- **Construction and aggregates:** efficiently package sand, gravel, cement and other construction materials, ensuring safe transportation and storage.
- **Waste management:** streamline the handling of recyclable and non-recyclable waste, promoting sustainability.
- **Chemicals and pharmaceuticals:** maintain strict quality and safety standards while managing bulk chemical and pharmaceutical products.
- **Food and agriculture:** handle bulk food products and agricultural materials with care, ensuring hygiene and quality.

With companies across sectors – from agriculture to construction – constantly searching for ways to streamline their operations, reduce labour costs and enhance productivity, bag placers can provide an effective solution. This vital piece of automated packaging equipment has transformed how businesses handle bulk materials.

A bag placer is an automated machine designed to pick up, open, and position empty bags on to a filling spout or station. Essential in industries dealing with bulk materials such as grains, powders and aggregates, a bag placer ensures accurate, consistent bag placement, significantly reducing the need for manual labour and increasing the speed of the packaging process.

Implementing a bag placer can drastically improve the packaging line's efficiency. By automating the initial step of bag placement, the machine enables faster and more reliable operation, allowing businesses to increase throughput and meet higher production demands.

Automating the bag placement process means fewer manual tasks for the workforce. Fewer manual tasks mean a lower risk of repetitive strain injuries, contributing to a healthier and more productive work environment.

Manual bagging often leads to misaligned bags, spills, and inconsistent fills – issues that a bag placer effectively eliminates. With advanced sensors and precision technology, these machines ensure each bag is correctly positioned, reducing waste and ensuring uniform product quality.

Modern bag placers are versatile, capable of handling various bag types and sizes, including paper, plastic, and woven polypropylene. Whether your operation involves packaging food products, chemicals, or construction materials, a bag placer can be tailored to meet your specific needs.

Safety is paramount in any industrial operation. By reducing the need for manual handling of heavy or hazardous materials, a bag placer minimises the risk of workplace accidents. Automation enhances safety standards, creating a safer, more efficient work environment.

Selecting the right bag placer is critical to optimising the packaging process. Consider factors like the type of materials handled, the size and type of bags, and the required speed of the production line. RMGroup offers a diverse range of bag placers, from stand-alone units to fully integrated systems, designed to meet the unique needs of various industries.

REDUCING THE RISKS

Ensuring that crews and the ships they serve on remain safe is a vital element of maritime activity, with a number of new initiatives underlining the issues faced

Chairing the Policy Forum Workshop at the recent International Union of Marine Insurance (IUMI) 150th annual conference in Berlin, Neil Roberts IUMI Policy Forum Chair and Head of Marine and Aviation at Lloyd's Market Association, affirmed that maritime safety and security remained at the top of IUMI's agenda.

He gave an update on marine insurance implications related to the Red Sea, saying: "In the Red Sea, the international naval intervention helps provide insurers with the confidence to continue supporting trade as appropriate. However, vessels are still being regularly attacked and IUMI has been able to engage in constructive dialogue with EU Aspides on specific mitigation measures and to share the main learnings with our members (Aspides is the EU military operation established to respond to Houthi engagements with international shipping in the Red Sea).

"The complications brought by sanctions are a challenge to all in the maritime sector and it is important for insurers to keep an open dialogue with government bodies to try to avoid unintended consequences where there are losses of assets – and tragically seafarers – at sea."

He went on to outline some of IUMI's ongoing work with International Maritime Organization (IMO), specifically on vessel safety. During 2024, IUMI has been widening its work with IMO and has been actively involved in a number of IMO working groups with a strong focus on ship safety.

It has long been known that growing container carrying capacity has been outpacing mitigation measures and there have been multiple instances of ships having insufficient fire-fighting capacity. With ship fires still trending up, IUMI is supporting improved fire detection and a change to SOLAS so that fixed water monitors will be a mandatory requirement for newbuilds. This would be a material step forward in improved fire protection on future containerships since, currently, firefighting efforts are confined to portable water monitors and mist lances.

Container stacking and lashing are at the root of continuing losses of containers overboard and industry co-operation and regulatory changes will be needed as solutions are sought. As a practical illustration of that, IUMI is only able to participate in the TopTier Joint Industry Project thanks to the assistance of the German Insurance Association. TopTier is developing several recommendations to address the complex root causes of containers lost overboard which will be discussed at the IMO Sub-Committee on Carriage of Cargoes and Containers.

CHARCOAL CARRIAGE

The Cargo Incident Notification System (CINS), a safety initiative representing container shipping lines and maritime insurance interests has launched its latest advisory publication, *Guidelines for the Safe Carriage of Charcoal in Containers*. It contains the provisions set out in the maritime dangerous goods regulations for the transport of this potentially combustible commodity, which is commonly shipped in volume, explaining these measures and providing additional guidance for all involved in this complex international supply chain.

The packaging, declaration and transport of charcoal must comply with the International Maritime Dangerous Goods (IMDG) Code. Significant new provisions have been agreed by the International Maritime Organization (IMO) (Amendment 42-24) and will come into transitional effect from 1 January 2025 with mandatory compliance required as of 2026. The Amendment means charcoal will no longer benefit from any IMDG code exemption. The guidelines, however, strongly recommend early adoption of the new regulations and explain in detail how compliance may be achieved.

The CINS guidelines, prepared and published in conjunction with the International Group and international freight and logistics insurer TT Club, state: "It is estimated that global production of charcoal for domestic and export markets is over 50m tonnes per year. From the incident records created by CINS members, it is known that there were at least 68 fire incidents on board ships between January 2015 and December 2022. Most of these incidents were caused by misdeclared cargo and therefore the carrier was not aware of the hazards presented."

The practices set out in the document are intended to address safety concerns, recognising that the key driver for change arises from charcoal intended as a fuel for burning. The guidance also notes that there are other technical types of charcoal, such as used for art materials, which have a different risk profile, urging carriers to establish effective due diligence processes.

In view of the sensitivity of this fuel cargo and history of incidents, the publishers are recommending that it should be treated as dangerous goods, regardless of current or previous regulatory provisions. It is vital to ensure that this cargo is properly prepared, declared and packaged for safe transportation.

STAYING FIT AT SEA

The Seafarers Hospital Society (SHS) has partnered with MarinePALS, a leading provider of maritime eLearning solutions, to bring its series of six expert-led physiotherapy videos – *Fit and Healthy at Sea* – to its digital learning platform MarineFlix.

Designed as a preventative toolkit, these exercises proactively reduce exposure to common injuries and help minimise crew absence and turnover due to injury — supporting both seafarers and ship operators in maintaining safe and resilient workplaces.

The *Fit and Healthy at Sea* videos were designed and performed by a licensed physiotherapist based on data gathered by SHS through its extensive history of providing free physiotherapy services to seafarers of all nationalities working

in UK territorial waters. This data-led approach revealed specific muscle groups that were more susceptible to repetitive strain injuries or stiffness caused by static postures for long periods of time.

For example, in 2024 alone, SHS has already provided more than 500 sessions of treatment via their network of physiotherapists, of which 36% presented with back injuries, 25% suffered from lower limb injuries, 19% have upper limb injuries, with a further 16% reporting neck injuries and 4% with hip injuries.

Captain Pradeep Chawla, CEO of MarinePALS, says: "At MarinePALS, our goal has always been to support maritime professionals not only in their careers, but also in their overall well-being. Partnering with SHS to offer these free physiotherapy videos aligns perfectly with this mission. Having spent many years at sea, I have first-hand experience of the physical toll crew experience as a result of long hours, repetitive tasks, physically demanding labour and limited space.

"Injuries come not only with joint pain, discomfort or muscle damage, but also carry the risk of impacting a seafarer's mental health with concerns about their finances, ability to work and the effect on their career. Ship operators, already facing crew shortages for particular positions, are also left vulnerable and short-staffed under these conditions. By ensuring we have the resources available to minimise workplace injury, we can collaboratively ensure better musculoskeletal health and improved safety at sea and on shore."

Fit and Healthy At Sea is designed with seafarers in mind: short and simple exercises which can be easily incorporated into daily routines while at sea or onshore, targeting key areas such as the hips, sides, hamstrings, neck, shoulders and chest. These exercises are well suited to small, enclosed spaces, such as crew cabins, and require minimal equipment. Since repetitive strain injuries can affect shore-based and offshore staff, the videos are designed to accommodate both environments. The videos can also be downloaded so they can be accessed without an internet connection.

Sandra Welch, CEO of the SHS, says: "We are very pleased to partner with MarinePALS to make our *Fit and Healthy* physiotherapy videos more widely available to the shipping industry. Proactively improving seafarer musculoskeletal health not only has the benefit of reducing the risk of physical workplace injuries, but also can contribute to positive company culture by demonstrating an investment in crew health and wellbeing. Employers who proactively prioritise the health and safety of seafarers gain reputational benefits, which can help with recruitment and retention efforts while also contributing to ESG values."

"Our hope is that by making physiotherapy resources like *Fit and Healthy at Sea* more accessible, we can help prevent injuries and improve the quality of life for seafarers. While we continue to work with other eLearning platforms such as Ocean Technologies Group to distribute these resources, this new partnership with MarinePALS will allow us to reach even more seafarers, ensuring that they have the tools they need to stay healthy and prevent injury."

To download Fit and Healthy at Sea, visit: seahospital.org or marinepals.com

> "Injuries come not only with joint pain, discomfort or muscle damage, but also carry the risk of impacting a seafarer's mental health

STABILITY IN SERVICE

Scottish maritime technology company Tymor Marine has been awarded a contract by Aker BP to set up its 'stability in service' technology, MOSIS, onboard its floating production unit at Norwegian Sea oil and gas field Skarv.

MOSIS (Measurement of Stability in Service) measures any floating unit's stability (VCG) while the vessel is in service. The technology works by inclining the vessel approximately one degree to both port and starboard using embedded statistical processes to analyse data and generate insights while the vessel continues its operations.

Data is captured under real and changeable conditions to track weight additions and stability more accurately. This 'real time' data capture increases operational safety and resilience, using the unlocked data to optimise the vessel's operating parameters.

Kevin Moran, Managing Director of Tymor Marine, says: "By showing confidence in our disruptive technology, Aker BP has allowed us to unlock stability data that is not available via the onboard loading computer. A regular and accurate measurement of a ship's stability has huge advantages both in terms of safety and economic benefits.

"A significant market disruptor, MOSIS is now a proven and accepted technology we believe could add considerable value to every vessel's operations and performance, now and in the future."

ENCLOSED SPACE CASUALTIES

Appalled that deaths in enclosed spaces continue to be all too frequent occurrences in the shipping industry, The Maritime Professional Council of the United Kingdom (MPC) is supporting calls for fundamental changes to ship operation and design. It welcomes the shipping industry's new roadmap to prevent this needless loss of life.

MPC member InterManager, the global body that represents ship managers, says: "Seemingly innocuous compartments, cargo holds and fuel tanks, vital for storage and operation

on board any vessel, have become graveyards for far too many seafarers due to a lack of attention, regulation and understanding."

A surge of enclosed space-related deaths on ships in late 2023 led InterManager to call on the shipping industry to work together to improve safety in these challenging onboard areas. In December last year the deaths of three seafarers and five shore workers in accidents in enclosed spaces in just seven days brought the total known deaths in these dangerous areas of vessels in 2023 to 31.

InterManager records these incidents on behalf of the wider shipping community. Its statistics show that since 1996, 310 people lost their lives in enclosed spaces on ships – 224 seafarers and 86 shore personnel in 197 accidents.

InterManager's Secretary General Captain Kuba Szymanski warns: "It's a minefield. We've created an unsafe environment and then we blame people for not navigating it properly. It's absurd."

He highlighted the ineffectiveness of International Maritime Organization (IMO) regulations introduced in 2011, intended to prevent enclosed space fatalities. "Since 2011, an increase in fatalities in our data is related to the introduction of new IMO-introduced regulation. This regulation hoped to eradicate all enclosed space accidents. But it was evident that it didn't because the shipping industry was barking up the wrong tree."

Specifically, he argues: "One of the biggest issues is the flawed design of enclosed spaces." This particularly includes cargo hold access arrangements.

"As an industry," Captain Szymanski says "we need to have one voice, one approach to safety. Fragmented standards and practices only put lives at risk."

The MPC is encouraged by the shipping industry's response to Captain Szymanski's plea for collaboration and unity across. The formation this year of a pan-maritime industry group and Enclosed Space Entry – Joint Industry Workshop meetings, demonstrates the industry's commitment to addressing this issue. Two workshops, with the most recent this July, took place at the Oil Companies International Marine Forum office in London.

The MPC believes the creation of the group to provide a single voice on enclosed space deaths is a major step forward.

The output of these two workshops has not just been a set of actions but, crucially, a roadmap for action to stop enclosed space deaths on ships the association believes. The industry group will meet again before the end of the year to review progress and continue to develop specific outputs. Involvement is crucial to the success of these actions, and the MPC looks forward to continued active participation.

Meanwhile, the industry group is gathering information on enclosed space accidents, with InterManager collating the responses. The information will be kept strictly confidential and can be sent to ***enclosedspaceaccidents@intermanager.org*** along with the approximate date, the ship's name, and a brief description of the accident.

The MPC stresses that data gathering is essential and the ship's name is needed to reduce the possibility of counting an accident several times, but it will not be disclosed publicly.

SUPPLY CHAIN SAFETY

The Cargo Integrity Group (CIG) has commended the recent circular issued by the China Maritime Safety Administration (MSA) following the explosion incident involving the vessel *YM Mobility* in August at Ningbo-Zhoushan Port. This incident, along with other recent fires aboard vessels, underscores the need for enhanced safety measures and vigilance in the transport of dangerous goods by sea.

In its circular, the MSA reiterated the need for all shipping-related enterprises to implement comprehensive safety protocols, particularly during high-temperature seasons. This includes the rigorous management of dangerous goods, adherence to safety regulations and thorough education and safety training for employees and crew members to handle potential risks effectively.

The CIG echoes these sentiments. It is imperative that all parties involved in the supply chain – including shippers, freight forwarders, carriers, and port operators – recognise their roles and responsibilities in ensuring the safe transport of containers, both in compliance with dangerous goods regulations and in adopting sound industry practice, such as the CTU Code, it says. Each party must contribute to a culture of safety that prioritises the well-being of supply chain employees and vessel crews.

Key responsibilities for safe container transport:

- **Shippers:** must ensure that all cargo is correctly classified, packaged and labelled according to the International Maritime Dangerous Goods (IMDG) Code. Accurate and timely provision of emergency information to carriers is not just a regulatory requirement, but a critical component in mitigating risks associated with the transport of dangerous goods.
- **Carriers and shipping companies:** must maintain robust safety management systems and conduct regular training and emergency drills to enhance the preparedness of crews. Proper stowage, segregation, and isolation of dangerous goods, along with diligent inspection protocols, are essential to prevent incidents.
- **Freight forwarders and port operators:** should work closely with carriers and shippers to verify cargo documentation and ensure the accurate declaration of dangerous goods. They should also be vigilant in inspecting containers for any potential hazards.

The CIG also stresses the importance of immediate communication and coordination among all parties to address any discrepancies or emergencies swiftly. As noted in the MSA circular, the proper management of dangerous goods, including temperature-sensitive materials and those with lower flash points, requires

stringent adherence to safety guidelines.

"We must all work together to uphold the highest standards of safety in the transport of containers," says the CIG. "The recent incidents serve as a stark reminder that there is no room for complacency. We urge all parties to renew their commitment to safety, ensuring that the tragic events we have witnessed are not repeated."

PERMIT TO WORK

NAPA, a global provider of maritime software and data services, has announced the launch of NAPA Permit to Work to improve crew safety and efficiency when conducting high-risk tasks onboard. The new software is being trialled by Carnival Cruise Line and Virgin Voyages.

NAPA Permit to Work will digitalise the mandatory work permit process required for conducting hazardous tasks onboard, such as working at height, performing hot work, or entering enclosed spaces.

Traditionally, these permits are managed through paper forms as part of a ship operator's safety management system (SMS) and require crews to spend hours going around the ship to collect a multitude of signatures from different departments. The manual nature of this process is prone to delays, errors, and miscommunication, posing safety risks and inefficiencies.

Instead, the software will save time for crews by digitalising those signatures and decrease incident risks by automatically notifying all relevant departments and personnel with real-time status updates of ongoing work, especially riskier tasks like tank cleaning.

NAPA Permit to Work will act as a comprehensive digital checklist to help seafarers ensure that no safety-critical steps are missed. The system is designed so that no digital form is accepted unless all required safety checks are completed before the start of any job, significantly reducing the risk of oversight.

Post-covid, a large proportion of crew working aboard cruise ships are on their first contract with little at-sea experience. This functionality provides a virtual guide and augments previous training, eases handovers and minimises the margin for error.

For shoreside teams, this data transparency delivers better fleet-wide visibility of ongoing work and conditions, enabling a more proactive approach to safety, maintenance and resolving technical issues. Taking a long-term view, the data collected on the platform can be analysed to help spot trends at a granular, per vessel and per voyage level.

This can be used to evaluate what machinery or systems require maintenance to then swiftly take preventative or remedial action. From a passenger and guest experience perspective, this functionality also contributes to easier and faster maintenance work facilitated by real-time visibility and prioritisation of tasks.

STOPPING SHIP FIRES

Prompted by the recent spate of container ship fires, international freight and logistics insurance provider TT Club has stressed the greater need for all players in the global supply chain to recognise their responsibility for accurate and effective communication between all parties for the transport of dangerous goods.

The sad list of both explosions and fires extends from *Northern Juvenile* in the South China Sea in May, to *Maersk Frankfurt* in the Indian Ocean to more recent incidents in quick succession, which involved *MSC Cape Town III* in Colombo and *YM Mobility* in Ningbo.

"The causes remain under investigation," says TT's Peregrine Storrs-Fox. "However, there are strong indications that potentially explosive chemicals and fire accelerators, such as lithium-ion batteries, may be involved in at least two of the cases. As with historic incidents, it is likely that various errors occurred as the shipments were initiated and the exact nature of the cargoes was communicated to supply chain counterparties, giving rise again to 'perfect storms'.

"Every participant in the process needs to act in the best interests of safety at every point in these cargoes' journeys."

This spike in serious container ship fires is reminiscent of the spate in 2019, although the 30-year average frequency may remain one every 60 days – but any life-threatening event is one too many, the club says. Of the recent four, unusually two took place while the ship was berthed and shore-side emergency services responded quickly to minimise damage and loss of life – although pollution and potential berth blockage risks emerged.

When incidents occur at sea much more serious consequences can develop, as exemplified by *Maersk Frankfurt* where one crewman lost his life, the fire burned for several days and the ship remains with salvors at sea.

The exact number of containers carrying dangerous goods that are shipped annually is difficult to estimate due to mis- and non-declaration. Partly in response to the issues around inaccurate declaration, the International Maritime Organization (IMO) amended the *Guidelines for the implementation of the inspection programmes for cargo transport units* in 2022 to urge governments to inspect all types of unit, regardless of the declared cargo. The recently released consolidated results, from just eight countries (or 5% of the signatory states), for 2023 are evidence of continuing safety concerns.

Although from the minute sample size of about 0.03% of containerised traffic, 'placarding and marking' shows some improvement, this deficiency, being for first visual alert for many stakeholders and particularly emergency responders, remains stubbornly above 40%.

Furthermore, reports noting deficiencies in stowage and securing'(within units) – a core CTU Code issue – indicates a rapidly worsening trend over the past five years and the worst position since reports began in 2001.

Also of note is the five year worsening trend relating to errors found in documentation, another key risk indicator. Care of every shipment requires good communication along the supply chain, due diligence undertaken by every player and a culture of 'know your customer and operating partner'.

Losses overboard

Understanding the circumstances that lead to stack collapse and losses overboard incidents is of course vital in mitigating the risk. TT Club is backing the World Shipping Council initiative to publish the details of the annual survey into container loss and recognises the lowest level of recorded losses during 2023, including the important fact that around 33% of units initially lost are subsequently recovered.

Nevertheless, TT's own analysis of historic incidents clearly shows that weather is the single most influential factor. Furthermore, the data demonstrate that this is far more complex a challenge, involving a wide range of interconnected operations.

"In this context, TT has been involved from conception with the MARIN TopTier Joint Industry Project," emphasises Storrs-Fox. "This on-going project has drawn together over forty industry and governmental stakeholders in identifying and resolving the circumstances that lead to such incidents. It has already delivered important guidance relating to mitigating parametric roll risks and the Club will continue to be involved in the debates, particularly at the IMO, following the finalisation of the research."

While focus is mostly on ship operations, TT has long recognised that all participants in the freight supply chain carry responsibility. When the transport order is initially placed the accuracy of the verified gross mass is pivotal, as is the correct load distribution and securing when packing cargo into the container. Consequently, TT's cargo integrity campaign remains central to its work, alongside partners in the Cargo Integrity Group.

At the ship/port interface, the terminal operating system (TOS) must support the appropriate stowage on board the ship, alongside stow planning software. These systems need to plan heavier containers lower in any given deck stack. Storrs-Fox comments: "TopTier studies have identified discrepancies up to 20% between planned stow versus the actual final stow on board. If representative of all operations, this is itself alarming."

As to environmental factors, TT's analyses identified potential commonalities across several incidents. Wave height was amongst the more obvious attributes, but wave length and period appeared to be of even greater importance. Indeed, it was recognised that wave period is responsible for resonant phenomena, such as parametric roll and synchronous rolling, that can give rise to stow collapses and losses overboard.

Conventional wisdom remains that heavy storms should be avoided where possible to minimise the risk of container loss. Re-routing away from the Red Sea this year has exposed many voyages to extreme weather off southern Africa. Nevertheless, deployment of innovative technology can assist in building greater safety margins, including leveraging data capture to improve understanding and predictions of changing sea conditions.

"Ships will never be able to avoid the impact of heavy seas entirely," concludes Storrs-Fox. "Consequently TT, in furtherance of its mission to make the global logistics industry safer, more secure and more sustainable, continues with its efforts on this issue and urges industry colleagues to do likewise."

PLATFORM APPROACH

The Dry Bulk Centre of Excellence (DBCE) is proud to announce the launch of the Dry Bulk Management Standard (DryBMS) platform, marking a significant achievement for the maritime industry.

It has taken four years of development through dedicated collaboration with leading shipowners and managers, together with risk management experts and supply chain stakeholders.

It is a user-friendly online self-assessment tool for subscribing shipowners and stakeholders, which is designed to assess safety management processes and practices. There are 30 subject areas within four sections: Performance; People; Plant; and Process.

All the data entered is confidential – only the subscriber can share it. The DryBMS self-assessment tool provides a score of a subscriber's standing against industry expectations, at four levels – basic, intermediate, advanced and excellence – which provides a pathway for maintaining good current practice or management improvements.

By adopting the DryBMS framework, a subscriber can show their dedication to safety improvement and can demonstrate their operations exceed fundamental requirements.

The welfare of crew, protection of the environment, and sustainable operation of assets form the bedrock of this initiative, all of which encourage companies towards better operational practices. This benefits not just ship owners, but all in the industry.

> "The welfare of crew and protection of the environment from the bedrock of this initiative

REMOTE PILOTAGE

The International Maritime Pilots' Association (IMPA), which represents more than 50 member countries, is partnering with the Canadian National Centre of Expertise on Maritime Pilotage (NCEMP) and the Canadian Coast Guard to rigorously explore remote pilotage to ground-truth its feasibility, readiness, and impacts on safe navigation practices and systems.

This work aims to provide authoritative insights into the current and potential use of remote pilotage on conventional ships and those that might be navigated remotely or by software with autonomy in the future.

The International Maritime Organization recognises the importance of employing qualified, licensed pilots on board ships in areas where such pilotage services would contribute to the safety of navigation more effectively than other possible measures, including ports and other areas where specialised knowledge is essential.

Countries rely on the expertise and local knowledge of maritime pilots to ensure the safe and efficient movement of ships in compulsory pilotage areas where marine navigation conditions are most challenging. Maritime pilots play a vital role in ensuring that shipping does not negatively impact coastal communities and the economic, social and environmental interests of nations relying on maritime trade.

Given the role of maritime pilotage, IMPA considers it critically important that any concept that could impact compulsory pilotage practices and systems, including remote pilotage, be carefully examined and assessed. Captain Simon Pelletier, President of IMPA says: "The number and variety of people talking about remote navigation and pilotage makes it necessary for IMPA to conduct a rigorous, objective analysis to help pilots' organisations, competent authorities, and industry make informed decisions.

"Providing authoritative, evidence-based guidance to support objective decision-making in maritime pilotage is key to ensuring the continued safety of marine navigation. It is part of the reason IMPA exists."

Commissioner of the Canadian Coast Guard Mario Pelletier says: "The collaboration with IMPA and the NCEMP will help us understand what role new technologies regarding remote navigation and autonomy might play in the future and how the Coast Guards around the globe must adapt to meet the evolving needs of mariners."

According to Captain Alain Arseneault, Executive Director of the NCEMP, remote navigation trials have different motivations, reflect different realities, and use various operational solutions. "A lot is being said about remote pilotage, but ensuring that aspirations and technological solutions do not get ahead of navigation safety is in everyone's interests. We need clear, evidence-based and authoritative guidance, not just in Canada but in other jurisdictions as well."

IMPA's project is unique because it brings together the know-how and experience of maritime pilots from more than 50 countries conducting more than two million acts of pilotage annually, combined with other operational, academic and advisory expertise. The project will study pilotage as a socio-technical system and the impact of any new protocols on risk, cost-effectiveness, and social acceptance.

The project will consider the findings of previous shore-based pilotage projects and seek to validate the insights delivered by the project with trials of technology and protocols on conventionally navigated ships, principally in Canada.

CAPTAIN SIMON PELLETIER, PRESIDENT OF IMPA

SLOW STEAMING: A WARNING

Many shipowners are turning to slow steaming, but independent design and engineering firm Houlder is urging caution. Those owners not informed by data analysis risk a series of unintended financial consequences, the company says. The practice could even hinder progress towards International Maritime Organisation greenhouse gas reduction targets.

RUPERT HARE, CEO, HOULDER

Slow steaming can have a positive, negative or neutral impact on vessel efficiency, depending on the ship's original design parameters, hydrodynamic performance and unique operational profile.

Houlder's research using Clarksons' data indicates a noticeable trend in the reduction of average service speeds across different vessel types – oil tankers, bulkers, and container ships – from 2012 to 2024. Specifically, container ships experienced the most significant decrease, with a reduction of 1.50 knots (-11%) by 2024, followed by bulkers and oil tankers, which saw reductions of 1.01 knots (-9%) and 0.74 knots (-6%) respectively.

Slow steaming is a ship operation strategy aimed at reducing fuel consumption and emissions by intentionally reducing engine power from its original rated level. Speed and power are related by a power law, meaning that a reduction in speed results in a disproportionately larger reduction in power consumption. This relationship makes it a viable

way to reduce greenhouse gas (GHG) emissions.

Iebum Shin, Data Analytics Lead at Houlder, cautions: "Any speed reduction could result in a significant departure from a vessel's original design parameters, so the benefit of corrective measures should be considered, too. For example, a simple hull retrofit or propellor optimisation to align with the vessel's new operating conditions could be the difference between slow steaming delivering minimal or real benefits."

The analysed data shows that while subject vessel types have reduced speed, the rate of reduction varies, reflecting differing impacts of slow steaming across vessel categories. The associated speed changes from 2012 underscores the unevenness in speed reduction, emphasising the need for a detailed and tailored approach when considering slow steaming as a strategy for reducing GHG emissions.

Shin adds: "It's important to carry out a ship-specific analysis to establish what the real saving will be from a range of speed reductions and to consider these against the other, perhaps unintended, or unseen, consequences."

Slow steaming has largely been popular because it is relatively simple to implement. In theory, it doesn't require extra capital expenditure (CAPEX) and, as long as the rest of the fleet is doing it to the same degree, then market economics should push the freight rate up to compensate the owner or charterer for the reduced annual cargo carrying capacity.

Houlder highlights that, in reality, slowing down is not necessarily a no-, or even low-cost option. There is often hidden CAPEX for the ship to address the consequences of slow steaming, such as modification to the turbocharger – and if engine de-rating is considered (as opposed to mechanical/software power limiters), CAPEX should be expected to be more significant.

There can also be unintended consequences of slow steaming on operating expenditure (OPEX) meaning that the expected fuel savings (and resulting OPEX reductions) may never be realised.

Also, consistently operating outside the ship's design parameters may mean costly engine maintenance is required more often – for example, cold corrosion, and fouling on the exhaust gas boiler, injector and piston rings.

Commenting on the bigger picture, Rupert Hare, CEO of Houlder, says: "There is real potential for significant financial impact in additional days on hire or in reduced cargo revenue if the market doesn't compensate with increased freight rates. If you can improve the ship's efficiency without a high cost and without slowing down, this will offer a competitive advantage in terms of earning capacity.

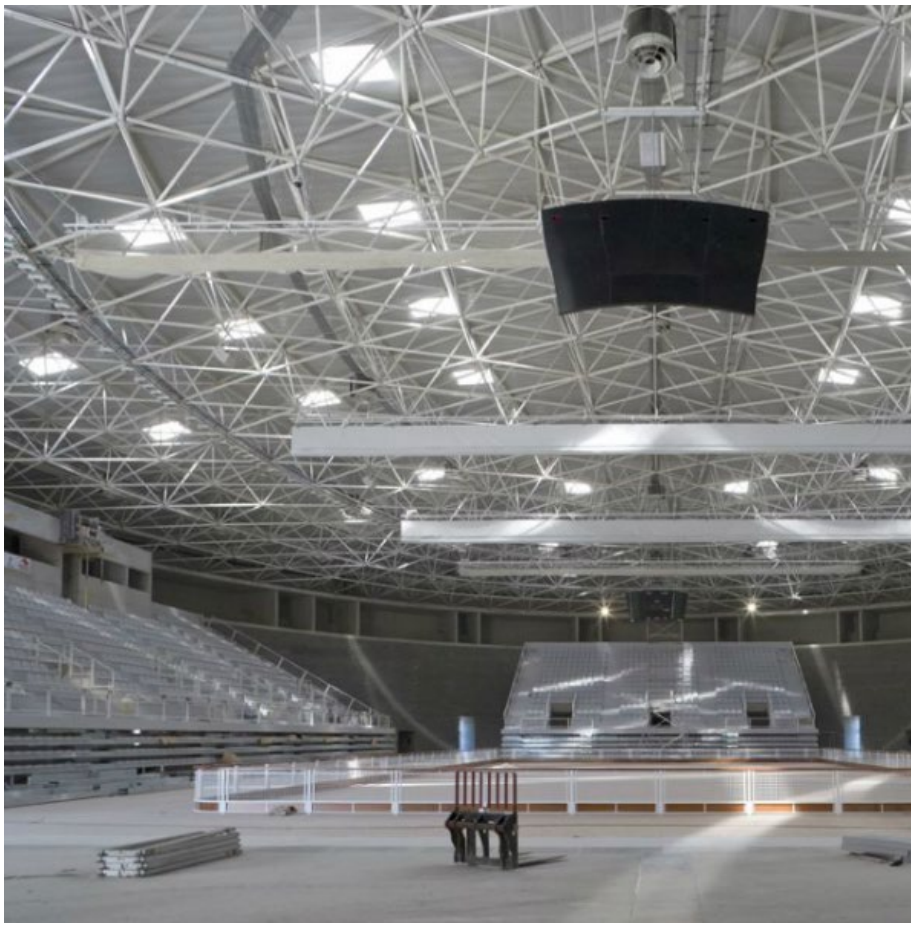
"Ultimately, if the fleet slows down, it will need to expand to maintain the same cargo-carrying capacity. More ships can easily result in more GHG emissions for the same cargo miles, hindering progress towards IMO GHG reduction targets.

"While slow steaming can lower emissions in some circumstances, it can also deter investments in a more ambitious, long-term, sustainability strategy – including investments in energy efficiency technology, optimised operations and new fuels."

Checking assumptions on slow steaming and understanding the ship's sweet spots should be the minimum evaluation. The latest computational fluid dynamics analysis based on digital twin technology, which Houlder's technical experts used in its study, can help shipowners realise a more ambitious long-term sustainability strategy.

UNDERCOVER OPERATIONS

Ensuring that product and processes are protected is vital for ports and covered storage is part of this mix



Modern sea ports are bustling hubs of international trade, where the efficient handling and storage of cargo are paramount. One of the key innovations enhancing port operations is the use of covered sheds, particularly those employing MetalKarma spaceframe technologies, the company says. These structures not only protect cargo from environmental elements, but also play a significant role in reducing environmental impacts.

Benefits of covered sheds in sea ports include:

Protection of cargo

» Weather protection: covered sheds shield cargo from rain, wind, and sun, preventing damage and degradation. This is crucial for materials sensitive to moisture and temperature changes, such as grains, minerals, and manufactured goods.

» Enhanced security: enclosing cargo in covered sheds reduces the risk of theft and vandalism. These structures can be equipped with advanced security systems, including

surveillance cameras and controlled access points.

Reduction of environmental impact

» Dust suppression: covered sheds prevent the dispersion of dust from bulk materials like coal and cement, improving air quality and reducing health risks for workers and nearby communities.
» Run-off control: by containing materials within a covered structure, the risk of contaminated runoff entering local waterways is minimised. This is particularly important for ports handling potentially hazardous materials.
» Noise reduction: the enclosed environment helps to contain operational noise, which is beneficial for ports located near residential areas. This helps in maintaining good relations with local communities and complying with noise regulations.

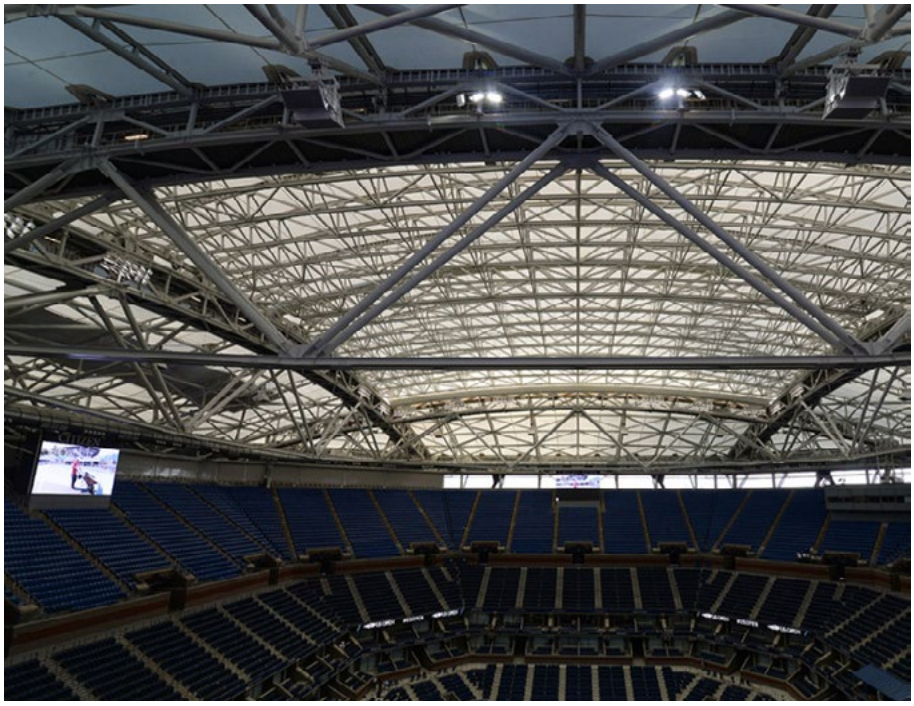
Operational efficiency

» Streamlined operations: the spacious, unobstructed design of Metalkarma spaceframe sheds facilitates the easy movement of cargo and machinery, enhancing loading and unloading efficiency.
» Maintenance reduction: high-quality materials and design reduce wear and tear on infrastructure, leading to lower maintenance costs and downtime.
» Energy efficiency: covered sheds can be designed with energy-efficient lighting and ventilation systems, reducing the overall energy consumption of port operations.

Economic benefits

» Reduced cargo loss: protecting cargo from weather-related damage and theft results in fewer losses and insurance claims.
» Long-term savings: The durability and low-maintenance requirements of Metalkarma spaceframes offer long-term financial benefits, with a favourable return on investment.

Covered sheds, especially those using MetalKarma spaceframe technologies, are transforming the way modern sea ports operate. By providing superior protection for cargo and significantly reducing environmental impacts, these structures are essential for the efficient and sustainable functioning of ports worldwide. Ports such as Los Angeles, Rotterdam, Singapore, and Brisbane demonstrate the tangible benefits of adopting such advanced technologies.



Power plants, thermal plants, grain dealers, mines, cement plants, ports and many other industries need to stock large quantities of dry bulk materials. These are often left uncovered, or stored in vertical silos. But silos are small and expensive, while open stockpiles are subject to material spoilage, and pollute with dust and runoff. A dome is a smart investment.

MetalKarma structures are built with an efficient structural system of strong and corrosion resistant galvanised steel or aluminum, and have spans that often exceed 200m. The light, prefabricated domes are containerised and shipped from our plant to anywhere in the world.

Installation can proceed before, during or after material handling equipment is in place, and the domes may even be built over existing stockpiles with minimal or no downtime.

Translucent cladding panels in matching profiles bring daylight into MetalKarma's domes and save energy costs. Ventilation openings can be designed into the structure to provide the desired air circulation.

Several anchoring options are available, including: cast in place (second pour), welded to embedded plates, and drilled anchors.

Openings of nearly any shape and size for vehicle and personnel access may be incorporated into a MetalKarma dome. Doors, frames and canopies are available for all openings.

Accommodation can be made for conveyors, chutes or blending equipment, without compromising the structural behaviour of the dome. Exterior or interior manways can be designed and supplied for convenient and safe access.

MetalKarma steel cladding is galvanised and coated with a baked-on polymer to give superior corrosion and ultraviolet ray resistance. Profiles are designed to best suit the job, and include rectangular or standing seam panels. Rectangular panels may be fastened to the inside of the structural frame to protect against fire or corrosion hazards.

LIVERPOOL EXPANSION

Maritime Transport, the UK's leading provider of integrated road and rail freight logistics, has completed the development of a major new container storage terminal at the Port of Liverpool. The state-of-the-art facility, which opened in September, will allow Maritime to expand its operations in Liverpool, facilitating more efficient distribution of goods from one of the UK's most interconnected ports to key regional markets.

Operating 24/7 and with capacity for up to 2,000teu, Maritime's newest addition to its network is uniquely placed to offer a full spectrum of storage, handling and maintenance services, supporting both long- and short-term requirements for loaded and empty container storage. The site also features reefer plug-in points, devanning services, a comprehensive security setup and a large vehicle fleet for first and final mile transport.

> This investment highlights the port's strategic importance as a hub for both national and international trade

Additionally, the company has invested in cutting-edge container handling equipment, with two new SANY H9 reach stackers operating on site that reduce fuel consumption by 20%.

Tom Williams, Deputy Chief Executive Officer, Maritime Transport, says: "We are delighted to open our newest container storage site at the Port of Liverpool, meeting the rising demand for storage options in the area. This expansion increases our capacity and provides new, modern facilities for our drivers and operational teams. It's an excellent addition to our network that will undoubtedly strengthen our service capabilities, and accommodate the growing volume of cargo activity at the Port following the introduction of MSC's Britannia service."

As part of the multi-million-pound project, Maritime is expanding its existing transport depot within the port from four acres to 11.4. A new two-storey building currently under construction will replace the previous structure, offering modern amenities such as shower facilities, kitchenettes, meeting rooms, driver lounges,and large office spaces, and forming part of a wider redesign to improve and standardise the company's operational buildings.

David Huck, Chief Operating Officer, Peel Ports Group, says: "We're very pleased to see the completion of Maritime's purpose-built space at the Port of Liverpool, which is a really positive development for the region that will create additional opportunities for cargo owners and retailers under current economic pressures. This investment highlights the port's strategic importance as a hub for both national and international trade and we look forward to continuing our strong partnership with Maritime as we work together to support the growth and resilience of the UK's supply chain."

Maritime now operates four dedicated container storage sites in Ipswich, Northampton, Liverpool, and Southampton, exceeding 30,000 TEU capacity, in addition to eight open-access, multi-user rail freight terminals in Tamworth, Birmingham, Manchester, Wakefield, Northampton, Mossend, Tilbury and East Midlands Gateway. Earlier this year, Maritime was also appointed as long-term operator of the Strategic Rail Freight Interchange (SRFI) at West Midlands Interchange, the UK's largest logistics development, and signed an exclusive agreement to develop, lease, and operate Tritax Symmetry's planned £750m SRFI at Hinckley National Rail Freight Interchange.

PORT WAREHOUSE

Hallgruppen has delivered a 2,070 square metre port warehouse to Elkem in Orkanger, Norway. The warehouse is located strategically in the harbour and is fully operational.

With the port warehouse customised to customer's needs, large bags of charcoal can be handled efficiently, which is crucial to Elkem's plans to increase charcoal use in its smelting process. The initiative is part of their broader mission to reduce fossil coal use and CO2 emissions. It can transport 30,000 'big-bags' in and out of the harbour using a port warehouse as a temporary storage facility.

Hallgruppen offers a wide range of suitably robust structures including bulk storage, warehouses, construction shelters, temporary buildings, and tarpaulins for private, public, and commercial port environments. All of these can be used for production, storage, and aquaculture.

The structures are designed to withstand challenging weather conditions such as extreme heat, cold, snow, and wind and can be tailored to meet specific needs.

The company's designs allow for varying levels of stored goods and can accommodate the storage, sorting, shipment or temporary holding of imported and exported goods. They offer a controlled environment with climate and dehumidification systems, making them ideal for goods that are sensitive to moisture.

Bulk storage warehouses and sheds typically feature high walls and huge floor areas, making them ideal for storing a wide range of bulk goods, including grain, salt, sand, pellets and more. The company's interior wall system is a cost-effective and customisable solution, designed to meet specific storage needs and accommodate bulk goods .

KEY TO SUCCESS

Ports in Australia have an essential role to play in the economic life of the country and also as means of providing vital resources that are being used to fuel a greener approach to business

The Port Authority of New South Wales (NSW) has welcomed the latest report from Ports Australia, which reinforces the immense economic impact of ports for the nation and NSW, with the 'State of Trade' report revealing Australian ports ensure the flow of $650bn worth of goods and commodities every year.

The report highlights the vital role of ports in NSW in the Australian economy, including $127bn in annual international trade value, facilitating the movement of 203m tonnes of cargo each year, and supporting 108,000 jobs across the state.

Port Authority of NSW CEO Captain Philip Holliday says Port Authority is proud to support the remarkable achievements of Australia's maritime economy.

"The State of Trade report highlights the significant role ports play in our everyday lives. Ports in NSW alone are responsible for the movement of millions of tonnes of goods, driving economic growth with a trade value in the hundreds of billions."

"Over the past decade, Port Authority has facilitated a $1tn contribution to the economy, supported thousands of jobs, and promoted regional and state-wide growth with safe and sustainable port operations maximising the efficiency of well-established supply chains.

"We are thrilled that Ports Australia is highlighting the pivotal role that ports play in driving Australia's economic engine. Ports are not only gateways for trade, but are integral to our communities. The State of Trade report confirms what we have known for years – that investing in our ports is investing in our future."

Ports Australia CEO Mike Gallacher says ports are the lifeblood of the economy and are responsible for 99% of Australia's international trade.

"The extensive data in the inaugural State of Trade report demonstrates the interconnectedness of Australia's key industries and supply chains to our economic health and allows us to plan for the future," Gallacher says.

Captain Holliday adds that the report's findings reflect a joint vision for the future. "Port Authority will continue to play a vital role in supporting Australia's economy and protecting our environment while putting people first. We look forward to working closely with Ports Australia, our industry partners, and the community to achieve even greater outcomes in the years ahead."

FORUM OFFERS INSIGHTS

The Port Authority of NSW recently hosted the second annual Safe and Efficient Port Operations Forum (SEPOF 2024), providing port users and industry leaders with key insights into the operations across six commercial ports around the state.

Port Authority's Chief Operating Officer, Captain John Finch, says SEPOF 2024 included a range of presentations by critical port stakeholders providing operational and industry updates, as well as highlighting initiatives to meet future sustainability targets.

"SEPOF 2024 showcased our strong port operation results for the past financial year 2023-2024 that saw a total of 5,587 commercial vessel visits across our six port operations equating to a 3% rise on the previous year," Finch says.

Port Authority of NSW is celebrating 10 years together as a state-owned corporation that has facilitated $108bn in trade for the Illawarra region and state economy.

Port Authority of NSW CEO Captain Philip Holliday says over the past 10 years, Port Authority has been the backbone for regional trade, ensuring the safe navigation of more than 8,000 commercial vessels through Port Kembla. "Over 10 years, Port Kembla has seen 2.4m motor vehicles through our port, almost 100% of NSW's motor vehicle imports"

"We have been committed to supporting our farmers, ensuring 21m tonnes of wheat was shipped safely out to the world contributing to the global food supply chain during difficult times.

"In the decade to come, we will continue our focus on fostering trade and economic growth in the Illawarra and investing in state-of-the-art technology to keep our port future fit for all opportunities.

"This includes standing ready for innovation in the port including supporting the new liquefied natural gas import facility under development and training our highly skilled operations team to accommodate shipping advancements."

Harbour Master of Port Kembla and South Coast Sharad Bhasin says: "Port Authority has been a pillar of the Illawarra and our hardworking team has had an immense and ongoing impact on our community" Captain Bhasin said.

"We are also leading sustainability projects such as our NSW-first anchorages project that is protecting the unique deep water rocky reef that is a biodiversity hotspot off Port Kembla."

RENEWABLES MOU

Industry fund manager IFM Investors, agribusiness and processing company GrainCorp and Australia's largest transport energy provider Ampol recently signed a Memorandum of Understanding (MoU) to explore the establishment of an integrated renewable fuels industry in Australia.

As the initial priority under the MoU, Ampol and IFM will progress the feasibility assessment of a renewable fuels facility at Ampol's Lytton Refinery in Brisbane and work with GrainCorp to explore the supply of homegrown feedstocks, including additional crushing capacity to supply canola oil, to the future plant.

The announcement builds on the existing feasibility work conducted by each of the parties to develop feedstock supply and production capacity of renewable fuels, including sustainable aviation fuel (SAF) and renewable diesel in Australia.

There is growing recognition globally that renewable fuels can materially reduce transport sector emissions, but Australia currently has no material production capacity to support the expected future demand.

The country has an advantage in

producing and supplying the feedstocks needed to help develop a large and globally competitive renewable fuels industry, helping drive decarbonisation in the hard-to-abate parts of the transport sector, including aviation as well as heavy and long-haul transport.

Momentum for a domestic SAF industry has grown in 2024, and Ampol, GrainCorp and IFM welcome the Federal Government's range of measures to help support the production of renewable fuels, such as SAF, in Australia.

Danny Elia, Global Head of Asset Management, IFM Investors, says: "As a major investor in airports, we have a significant interest in facilitating cleaner flying so we are proud to support this significant step in developing a SAF industry right here in Australia.

"IFM's long term investment approach is key to this emerging industry – we bring the scale, skill and dependability needed to support our iconic Australian partners, GrainCorp and Ampol, to kick-start a new industry that will create new jobs and economic opportunity.

"Alongside our industry super partners, we have been working closely with the government to identify ways to accelerate investment in Australia's energy transition, and a local SAF industry driven by Australian businesses is crucial to that acceleration."

Robert Spurway, Managing Director and CEO of GrainCorp, says: "GrainCorp is already a key supplier of high-quality feedstocks across Australia and New Zealand, including canola oil, tallow and used cooking oil. Australian growers produce millions of tonnes of feedstocks every year, the surplus of which is currently exported for refining into renewable fuels.

"An Australian renewable fuel refining industry will build a valuable new domestic market for our nation's growers and feedstock producers, with the benefits flowing on to regional communities and consumers."

Matt Halliday, Managing Director and CEO of Ampol, says: "Australia has a compelling competitive advantage in infrastructure, technical expertise and the availability of raw materials necessary to develop a renewable fuels capability. A combination of Ampol's existing infrastructure and capabilities, such as the Lytton site and Ampol's broader distribution network with established channels to market and strong customer relationships, can play a pivotal role in creating a national renewable fuels ecosystem.

"This foundational agreement is a significant step in establishing a renewable fuels industry in Queensland and Australia – creating benefits in energy security, supporting regional development and stimulating agriculture and manufacturing industries."

"An Australian renewable fuel refining industry will build a valuable new domestic market for our nation's growers and feedstock producers

LOW-CARBON KICKSTART

GrainCorp recently welcomed the Federal Government's launch of a consultation process on the incentives needed to kickstart an Australian renewable fuels industry.

The consultation, *A Future Made in Australia: Unlocking Australia's Low-Carbon Liquid Fuel Opportunity*, is one of several measures announced in the 2024 Federal Budget to support the establishment of a low-carbon liquid fuel refining industry in Australia.

GrainCorp Managing Director and CEO Robert Spurway says the consultation is further recognition from the government of the crucial role that sustainable aviation fuel (SAF) and renewable diesel play in decarbonising the Australian transport sectors.

"The government's launch of this consultation process will ensure we capture crucial industry knowledge and feedback to establish a renewable future in Australia," he says.

"This in turn will provide Australian growers, domestic feedstock supply chains and SAF refiners with the confidence to invest and build capacity to decarbonise our transport sectors."

The consultation complements a broader budgetary commitment of the $22.7bn Future Made in Australia package, which will help to accelerate investment and commercialisation of renewable initiatives in priority industries.

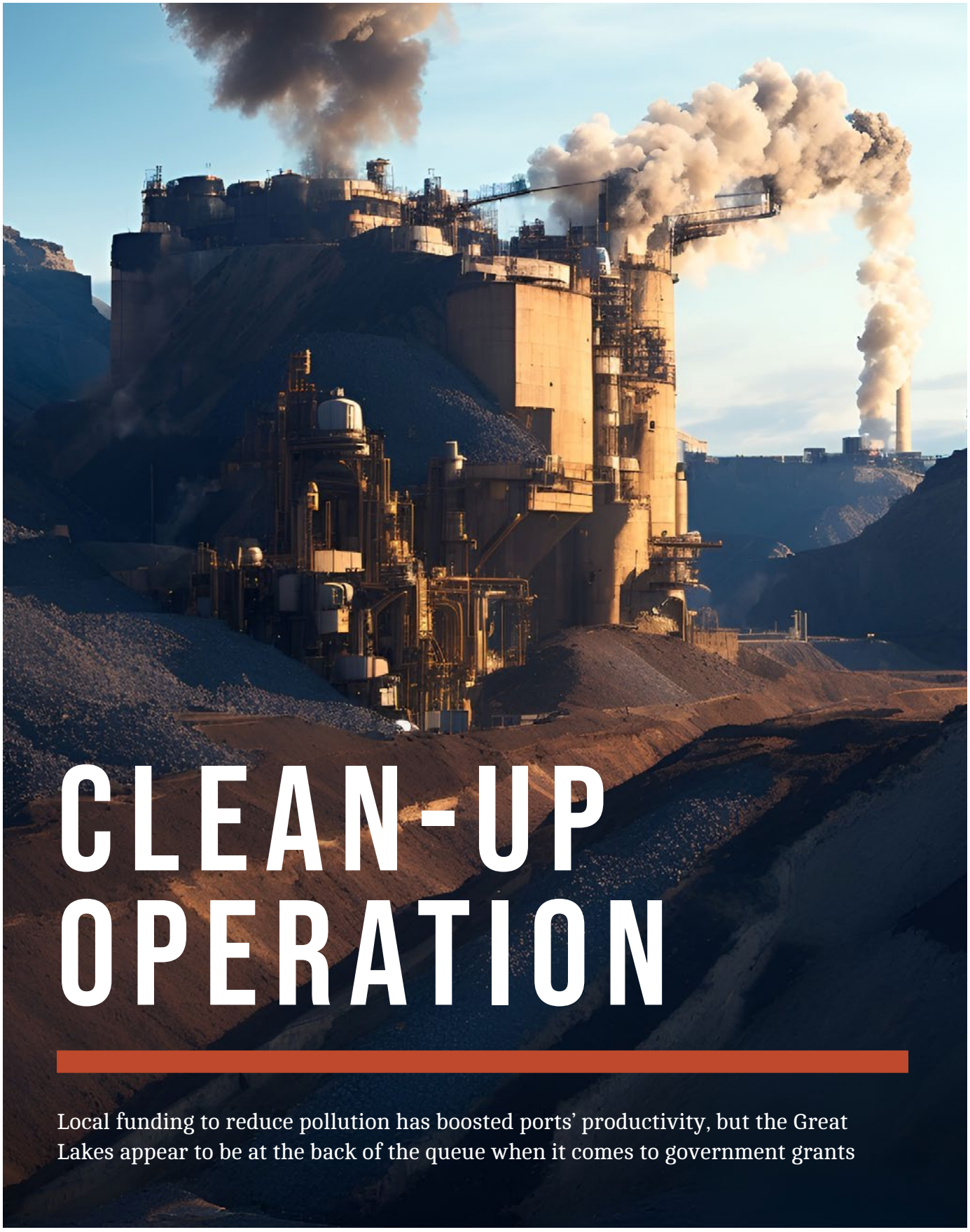
Spurway emphasises the strategic importance of the consultation for both GrainCorp and the broader agriculture industry.

"As the demand for renewable fuel feedstocks and SAF continues to grow, it presents a unique opportunity for Australia to make the most of its comparative advantage in agriculture capability, sustainable farming practices and land availability.

"GrainCorp is a leading supplier of feedstocks like tallow, vegetable oils and used cooking oils, and we'll contribute our expertise to this consultation, as we look to expand our canola seed crush capacity to support the growth of this industry.

"We're working closely with IFM Investors on our feasibility study into domestic crop-based fuel production, including the policy frameworks required to establish this exciting new opportunity for Australian growers.

"With the right incentives in place, a local SAF industry would onshore a valuable market for canola growers and feedstock producers, who are already exporting our surplus home-grown materials overseas for refining into biofuels."



CLEAN-UP OPERATION

Local funding to reduce pollution has boosted ports' productivity, but the Great Lakes appear to be at the back of the queue when it comes to government grants

The Great Lakes Commission (GLC) announced recently that it will award more than $1.45m in grants through the Great Lakes Sediment and Nutrient Reduction Program to reduce the runoff of pollutants such as sediment and nutrients from entering into the Great Lakes and their tributaries.

"For more than three decades, grants under our Great Lakes Sediment and Nutrient Reduction Program have supported local efforts to reduce sediment and nutrient pollution of our Great Lakes," Timothy Bruno, Vice Chair of the GLC and Great Lakes Program Coordinator, Interstate Water Resources Management, at the Pennsylvania Department of Environmental Protection. "Community efforts are critical to the lakes' health. The GLC congratulates the 2024 grantees of this longstanding programme and looks forward to their projects' contribution to a healthier and more resilient Great Lakes basin."

Each year, the Great Lakes Sediment and Nutrient Reduction Program provides competitive grants to local and state governments, indigenous nations, and non-profit organisations to install erosion and nutrient control practices in the Great Lakes basin, including innovative and unique practices not typically funded by other federal cost-share programs. Since 2016, projects funded by this programme have prevented more than 173,000 pounds of phosphorus and more than 337,000 tons of sediment from reaching the Great Lakes.

The 2024 projects continue to promote two approaches: long-term sediment and nutrient management through engagement with the agricultural community and streambank restoration.

Since 2010, the US Department of Agriculture – Natural Resources Conservation Service has provided funding for the Great Lakes Sediment and Nutrient Reduction Program under the Great Lakes Restoration Initiative (GLRI). In that time, the GLRI has provided more than $4.1bn to fund more than 8,100 projects across the region that protect freshwater resources by restoring wetlands, preventing the spread of invasive species and reducing sediment and nutrients.

IRON ORE TRADE DOWN

Shipments of iron ore from US ports on the Great Lakes totalled 5.5m tons in September, a decrease of 1.9% compared to a year ago. Shipments were above the month's five-year average by 6.6%.

Year-to-date, the iron ore trade stands at 36.5m tons, a decrease of less than 1 percent compared to the same point in 2023.

Through September, iron ore loadings were 7.3% above their five-year average for the first three quarters of the year.

PORT POLICIES

The Port Infrastructure Development Program (PIDP) is the primary source of federal investment in the nation's port infrastructure, such as dock reconstruction, rail improvements, road access, storage expansion, and modernization of cargo handling equipment. The program is managed by the Maritime Administration, an agency of the US Department of Transportation.

A report issued earlier this year by the American Great Lakes Ports Association suggested that port infrastructure grants were not being distributed equitably. In 2023, the report suggested, the US Department of Transportation distributed $653m under this programme and Great Lakes ports only received 2% of the funds. Over the five-year life of the program, Great Lakes ports received only 8% of funds distributed. By comparison, West Coast received 38.5% and East Coast ports received 34%.

Congress should require the US. Department of Transportation to distribute funds in an equitable manner between regions of the US, the report suggested. Improving the Great Lakes icebreaking services was just one area that needed attention, it said. Another was eliminating the backlog in the Corps of Engineers maintenance of navigation channels. Some $550m of dredging will be needed to maintain authorised dimension in the next few years, with repairs worth upwards of $700m needed for various navigation structures as well as several million for upgrades in lock systems, for example.

According to the report: "Maintenance activities for coastal and Great Lakes navigation are funded from the Harbor Maintenance Trust Fund, which is financed by the Harbor Maintenance Tax – a fee collected from users of the maritime transportation system. Although the tax generates adequate revenue, over the past two decades Congress has restricted spending on harbour maintenance due to budgetary constraints. The result has been crumbling infrastructure and harbours choked with sand and silt."

Completing the Soo Lock Project was also mentioned as a priority in the report. Owned and operated by the Army Corps of Engineers, the lock complex at Sault Ste Marie, Michigan enables ships to navigate the St Marys River, which connects Lake Superior and Lake Huron. Through this critical infrastructure, Great Lakes commercial vessels carry iron ore and other raw materials that feed the nation's steel industry, agricultural products destined for export markets, and low sulphur coal fuelling the region's electric utilities.

Unfortunately, the lock infrastructure is old and in need of repair and replacement. Congress originally authorised construction of a new large lock at Sault Ste Marie in the Water Resources Development Act of 1986. The project was reauthorised in 2022 at a total cost of $3.2bn. The project is currently under construction and has received a total of $1.9bn of federal and state funds to date.

"Congress and the Administration should keep the project moving forward and provide adequate funding in the FY2025 Energy and Water Development Appropriations Bill to enable the project to remain on schedule for completion in 2030," the report states.

Other issues raised by the report included improving customs and border protection services so as to encourage the development of new commerce and jobs in Great Lake Ports.

"US Customs and Border Protection's (CBP) current service model discourages the development of new commerce and jobs at Great Lakes ports. In a real sense, it asks commerce to shape itself to the inspection regime, rather than shaping the federal CBP inspection service to the efficient flow of commerce.

"Congress should provide more funding for CBP services, including staff, inspection facilities, and capital costs at seaports. To accomplish this goal, Congress should enact H.R. 6409, the CBP Space Act. This legislation allows revenue generated by the federal Merchandise Processing Fee (MPF) to be used for CBP capital needs at ports. Finally, Congress should direct CBP to develop a small port, low volume, and seasonal clearance model that accommodates the unique conditions and scale of the Great Lakes cargo and cruise market."

Pilotage has also come under the spotlight: "Under Coast Guard management, Great Lakes pilotage has become a runaway cost for international trade on the Great Lakes-St. Lawrence Seaway navigation system. In the past 10 years (2014-23), the overall cost of US. pilotage on the Great Lakes has tripled ($12.8m to $37m). Individual pilot compensation as set by the Coast Guard has soared to $440,658. Unreasonable costs threaten the competitiveness of international commerce on the Seaway system.

"Congress should update the Great Lakes Pilotage Act with the goal of maintaining safety, increasing efficiency, reducing costs, and improving the competitive position of the navigation system."

ICEBREAKER FUNDING

The US House of Representatives passed a critical amendment to the Homeland Security Appropriations Bill in June which would move funds from the Office of the Secretary of Homeland Security to the US Coast Guard for the procurement of an already authorised Great Lakes icebreaker (GLIB).

The GLIB is needed to maintain winter deliveries of raw materials to the US steel manufacturing industry (supporting nationwide automobile and appliance manufacturing) and respond to winter flooding of Great Lakes coastal communities.

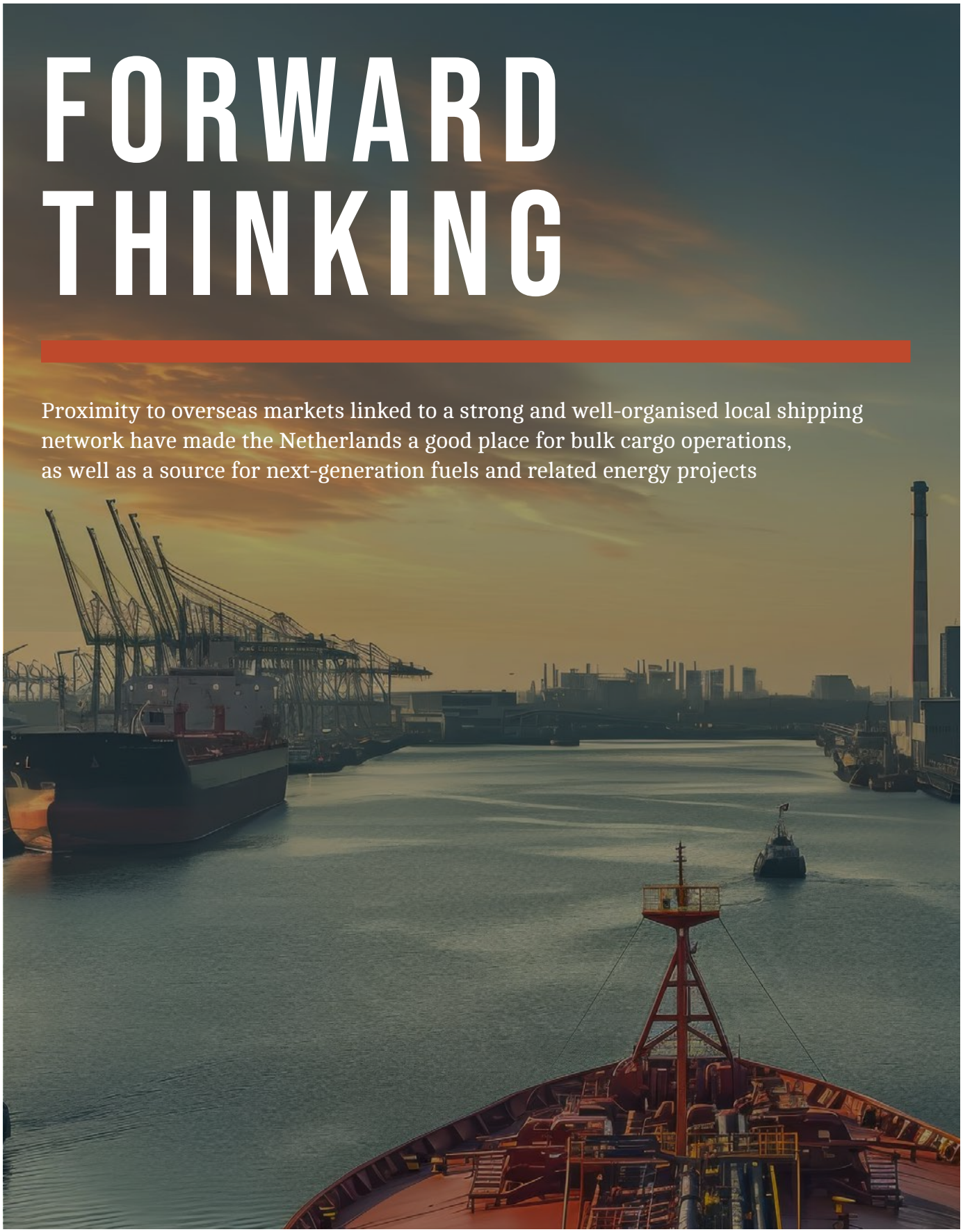
The amendment was submitted by Representative John James "The procurement of this already authorized Great Lakes icebreaker will mean smoother commerce in the Great Lakes region during the winter months. The Great Lakes account for countless jobs in Michigan and the entire upper Midwest, and its economy is critical to the overall health of American commerce and trade. I am happy to have led these efforts in the House and urge the Senate to swiftly adopt these measures to ensure this amendment can be signed into law."

The US Coast Guard asked for $55m for the GLIB in the President's Fiscal Year 2024 budget, but only received $20m towards the icebreaker's procurement.

"The US Coast Guard's new Great Lakes icebreaker will not only ensure commerce can move safely and efficiently during the winter months, but will also protect Michigan's shoreline communities from devasting ice jam flooding, which occurs nearly every year in the S. Clair River," says Jim Weakley, President of the Lake Carriers' Association.

FORWARD THINKING

Proximity to overseas markets linked to a strong and well-organised local shipping network have made the Netherlands a good place for bulk cargo operations, as well as a source for next-generation fuels and related energy projects



Cargo throughput in the Port of Rotterdam remained virtually unchanged in the first half of 2024 compared with the same period last year, according to a recent report by the port's managing authority.

Cargo throughput reached 220m tonnes. This is 0.3% lower than in the same period in 2023 (220.7m tonnes). The decline was mainly due to less handling of coal, crude oil and other liquid bulk. In contrast, throughput of iron ore and scrap, other dry bulk, mineral-oil products and containers increased.

Container throughput increased by 4.2% in tonnage due to increasing demand and an early peak season. Port of Rotterdam Authority investments were on track in the first half of the year. This included construction starting on CO2 transport and storage project Porthos, the award of the contract for the construction of the Prinses Alexia viaduct and the Port of Rotterdam Authority investment in making the port of Rotterdam more digitally resilient."

Boudewijn Siemons, CEO of Port of Rotterdam Authority comments: "After a period of economic uncertainty, we see demand for raw materials and consumer products starting to increase. This led to growth in container throughput in the first half of the year.

"Whether that trend will continue in other segments will depend partly on the pace of the European industry's recovery in the coming months. In the meantime, we are holding a steady course and continue to invest in and implement projects to make the energy and raw materials transitions a success and further improve the infrastructure of the port and industrial complex."

Compared with the first half of 2023, revenues – earned primarily from seaport dues and rental and leasehold income – increased by €23.0m to €439.6m. Operating expenses increased by € 13.3m to € 147.9m. As a result, earnings before tax, interest, depreciation and amortisation rose by € 9.7m to € 291.7m. The net result increased by € 31.7m to € 148.2m, according to the report.

"Dry bulk handling increased by 2.1% compared to the same period last year. The increase is mainly driven by higher throughput volumes of iron ore and scrap. This segment increased by 12.6% to 14.6m tonnes due to higher steel and iron production in Germany in the first half of the year. Throughput of coal decreased by 2.4m tonnes (-19.7%) due to low demand for thermal coal for power generation.

"Solar and wind are increasingly used as renewable sources for power generation. Throughput of coking coal also fell, despite the increase in steel production in Germany. Due to sufficient stock accumulation last year, supply decreased in the first half of the year," the report says.

"Throughput of agribulk decreased by 1.2m tonnes due to low demand for soybeans as a result of certain processes moving to the US. Other dry bulk (raw materials for various industrial applications and the construction sector) shows an increase. The throughput figures for agribulk (-19.3%) and other dry bulk (80.7%) show large deviations compared with 2023. "

Ships have not passed through the Suez Canal since late 2023, due to turmoil in the Red Sea. The container market is still adjusting to this new situation. Due to the longer sailing time via the Cape of Good Hope, there are challenges with finding sufficient vessel capacity, the authority said.

There is a lot of construction going on at the port at the moment. The hydrogen pipeline is under development, the Porthos CO2 transport and storage project is being built, and Shell's 200mw hydrogen plant is emerging on the first conversion park. At the second conversion park, which has space for 1gw of electrolysis, Zeevonk II will build an electrolyser. This consortium of Vattenfall and CIP won the tender for lot Beta of the IJmuiden Ver wind farm.

Energy and raw materials transitions are currently the biggest challenges facing European ports. Ports and industry in North-West Europe are therefore increasingly pulling together to secure a sustainable future for European industry and society.

Siemons says: "The European economy only has a future if the energy and raw materials transitions succeed. Ports play a crucial role in this.

"We therefore need to think and act more based on that cross-border interest. The faster Europe becomes independent of fossil fuels, the greater the chance of strategic autonomy. Delay means we remain geopolitically vulnerable, which is bad for the Netherlands as well as for Europe. A firm commitment from the Netherlands in Brussels, championing the interests of seaports in the energy and raw material transitions, is now more important than ever."

GLYCERINE PLANT

Argent Energy, a European biofuels manufacturer, opened Europe's largest technical-grade glycerine plant in the Amsterdam port area in September. The glycerine plant will upgrade by-products of the biodiesel production process to a product suitable for wide use in the chemical industry.

Argent's current plant, also located in the Amsterdam port area, produces biodiesel from certified waste and residue streams, with crude glycerine as a by-product. Argent's new plant can convert crude glycerine produced into 99.7% pure glycerine. The new glycerine refinery is part of Argent's expansion of its biodiesel facility, which will create 30 new jobs once complete.

The plant can produce 50,000 tonnes of glycerine per year. Argent's refined glycerine is suitable for the production of epichlorohydrin, a key component in the creation of epoxy resins, among many other applications.

Roon van Maanen, Director Energy and Circular Industry at Port of Amsterdam recently comments: "The opening of the glycerine plant is a big step towards a circular economy where by-products are upgraded to a new technical-grade product. This fits perfectly into our strategy to be a

leading European seaport, focusing on the transition to a sustainable society."

RAILWAY MANOEUVRES

Port of Rotterdam Authority and Swietelsky Rail Benelux have signed the contract for the construction of a bundle of six tracks suitable for 740-metre trains as part of the new Maasvlakte-Zuid railway yard.

This project was developed in close cooperation with ProRail and with the use of a European Connecting Europe Facility (CEF) subsidy. Swietelsky starts construction in the spring of 2025, with commissioning planned for mid-2027. Construction of the railway yard is necessary to facilitate the growth of rail freight transport from the Maasvlakte to the European hinterland. It is designed to solve the capacity bottleneck.

A reliable and competitive rail freight product is indispensable for Rotterdam's position in the European hinterland. Container throughput at the Port of Rotterdam is set to grow steadily over the coming years. To continue transporting the increasing flow of containers efficiently to the hinterland, the Port of Rotterdam Authority, ProRail and the Ministry of Infrastructure and Water Management are investing in sustainable and efficient rail development.

The construction of the Maasvlakte-Zuid railway yard is part of the Port Authority's efforts to encourage rail freight transport. Rail freight transport has lower emissions of CO2, NO_x and particulate matter than road transport.

The development of the yard will help the Port of Rotterdam Authority reduce CO2 emissions from hinterland and continental transport by 30% by 2030. The Port Authority expects further construction of the yard to stimulate 6,750 additional train combinations annually between the Maasvlakte and the hinterland. This is equivalent to replacing 675,000 truck journeys per year.

The Port of Rotterdam Authority and ProRail have drafted the 2050 Port Rail Logistics Vision. This plan provides insight into the future capacity bottlenecks on the port railway line and how they can be remedied. A number of infrastructure projects is planned in the period up to 2040 that will increase rail accessibility to the Maasvlakte.

These projects are being implemented in phases in cooperation with ProRail. In addition to the construction of the Maasvlakte-Zuid railway yard, the C2 curve will be modified and further electrification of the Port Railway line will be pursued.

HYDROGEN PLANT

Shell and TenneT have signed a connection and transport agreement to connect the first large-scale hydrogen plant to the high-voltage grid. Shell's Holland Hydrogen 1 will be a 200mw electrolyser on the Maasvlakte.

In the coming years, the electrolyser will initially be connected to the Maasvlakte 380kV high-voltage substation via a temporary connection. Once the Amaliahaven 380kV high-voltage substation is taken into commission, Shell will get a permanent and complete connection to the high-voltage grid. This enables TenneT to meet Shell's wish to realise a connection promptly.

Shell is constructing the first major plant for renewable hydrogen in Europe, with a capacity of 200mw. The plant will arise behind the dunes on the Dutch coast, on Maasvlakte 2. Holland Hydrogen 1 will help the Shell Energy and Chemicals Park Rotterdam (Pernis) among others, to become more sustainable. A special hydrogen pipeline connects the hydrogen plant to the Port of Rotterdam.

TenneT does not have enough space on the existing high-voltage substations to connect the hydrogen plant. A new 380kV high-voltage substation is therefore being constructed in the Amaliahaven at Maasvlakte 2. The substation is expected to be completed by the end of 2026. Shell and TenneT have therefore devised a temporary solution, enabling Shell to have a temporary and limited connection to the Maasvlakte 380 kV high-voltage substation. Once the Amaliahaven high-voltage substation is taken into commission, Shell will be completely and permanently connected to the high-voltage grid.

Maarten Abbenhuis, COO of TenneT says: "Seeing as space has become available on this temporary connection, we can already facilitate Shell's hydrogen plant. We have been able to find this solution due to the good collaboration between Shell and port of Rotterdam. It's a great example of a smart and unorthodox solution enabling parties to connect, despite the scarce space on the grid."

Frans Everts,CEO of Shell Nederland adds: "Green hydrogen, electrification and capturing and storing CO2 will enable us to make Dutch industry more sustainable. We will be able to make raw materials and products we all use every day in a clean way. This collaboration with TenneT demonstrates once more that the energy transition is a team sport. Together, we can accelerate this necessary transition to cleaner energy."

SHORE POWER

A pilot with moveable battery containers with shore power has been taking place at the Steinweg Beatrix Terminal. Vessels from Cargow shipping company have been successfully connected.

The pilot follows on from the experiment conducted on Parkkade in late 2019/early 2020. This time, vessels of the Cargow shipping company were connected. These vessels have a greater energy demand than required during the first pilot.

Furthermore, the pilot took place at an operational terminal instead of a public dock. The battery containers are from Zero Emission Services, known for the battery electric powered inland vessels. This pilot means a potential new revenue model with shore power for Zero Emission Services.

The application of shore power supplied from moveable batteries is technically feasible and could become a technical alternative to a standard shore

power connection. However, the price tag of such a project is higher than with a standard shore power connection and the expectation is therefore that this will only be used at locations where no electricity is available from the grid .

The Port of Rotterdam Authority coordinated the pilot and, with the Municipality of Rotterdam, is now exploring the possibilities for broader applications of moveable shore power concepts.

ENERGY EXCHANGE

A previous feasibility study by the Port of Rotterdam Authority and Yokogawa Electric Corporation shows that optimising the use of energy and utilities at companies can yield cost savings of between 5% and 10%.

By doing so, energy consumption can be optimised 'behind the meter'. Companies that have steam as a by-product can then choose to increase their production at the right time, for example, when a neighboring company is in need of more steam. This reduces heat losses and can prevent or reduce congestion in the electricity grid. With these results, Port of Rotterdam, Yokogawa/KBC and Distro Energy are now launching a pilot at scale for one year with companies in the port industrial cluster.

Up to six companies and two grid operators are participating in the pilot. The companies' energy related data will be used to set up an orchestration platform enabling companies to coordinate the use and exchange of multiple utilities among themselves. That 'coordination' will still be virtual during this pilot, but it will be the first time such data will be exchanged at industrial scale. This secure exchange of data is crucial in the project. To channel the data flows, an industrial cloud infrastructure is available to the participating companies.

On top of that, a cluster energy management system by Yokogawa/KBC ensures the optimisation of energy flows. The commercial valuation of the exchange between the companies and the energy markets then takes place on Distro Energy's trading platform. This way both the different energy gains and losses, as well as the CO2 effect are given a value.

The pilot will start at the end of this year and run over the course of one year, in order for all seasonal fluctuations to be taken into account. A similar demonstration within a cluster of companies in Japan showed that the cluster as collective performed better than individual companies. This meant that some companies were able to save a lot of energy and costs, while others came out slightly more expensive. There has to be compensation for that. For that matter, the project is not only a technical exercise, but also a social experiment. How will the management of the companies deal with performance improvements or deteriorations?

The Port of Rotterdam is tackling this pilot with an investment of around €2m. Called the Starlings project, the pilot takes its name from a flock of starlings that move as a flexible cloud for safety reasons because the group is less vulnerable than the individual. The birds adjust their movement and speed in relation to the birds flying closest to them.

The first results of the pilot are expected mid-2025. If these are sufficiently positive and lead to the intended resilience of the cluster and to energy, CO_2 and cost savings, it will be decided, together with the market, how the follow-up may be designed.

BATTERY RECYCLING

International battery recycling company SK tes is opening a new battery recycling facility in the Rotterdam port area. This facility recycles spent lithium batteries, electric vehicle batteries and battery production scrap to recover crucial raw materials. The company is thus meeting increasing market demand for materials for battery production, especially for electric vehicles.

The plant processes battery production scrap, waste electric vehicle batteries and recalled batteries. SK tes extracts 'black mass', an intermediate-processed product containing rare metals including lithium, cobalt and nickel that is fed back into the battery supply chain. By recovering valuable materials from used batteries SK tes mitigates the environmental impact of batteries disposal and supports the growing demand for scarce raw materials required for manufacturing new batteries.

The plant is equipped to process up to 10,000 tonnes of material annually and plans to double this capacity by expanding onto an adjacent plot. The new Rotterdam facility is initially spanning 10,000 square metres with potential expansion to 40,000 square metres.

POWERING UP

The container terminals of Hutchison Ports ECT Rotterdam (ECT) will be equipped with shore power facilities in the coming years. ECT has made an agreement with Rotterdam Shore Power (RSP), a partnership between Eneco and Port of Rotterdam Authority, to achieve this.

The first vessels are expected to be connected to the shore power facilities by 2028. Once the facilities are fully operational at both terminals in 2030, around 5,000 sea-going vessels can be connected to shore power annually. This will reduce the port's CO_2 emissions by around 35,000 tonnes a year.

RSP will construct and operate the shore power facilities, while ECT and Port of Rotterdam Authority will be responsible for the civil integration of the facilities at the quay and terminal site. The projects are part of the largest shore power projects in Europe, which jointly comprise around five kilometres of quay.

Rotterdam port's ambition is to be climate neutral by 2050, while remaining vital and competitive. Furthermore, Rotterdam port hereby meets European guidelines that are part of the European Green Deal.

Robert Simons, Port Councillor of the Municipality of Rotterdam, says: "This is a wonderful milestone for the Port of Rotterdam and a significant step towards our aim to provide all vessels at Rotterdam's quays with shore power. This development not only contributes to

cleaner air and lower noise pollution but also accelerates sustainability at our port and of the maritime sector."

CCS PROJECTS

Construction of the Porthos CCS project in the port area of Rotterdam is well underway. It is the first CO_2 transport and storage project of this scale in the European Union to be realised. Porthos is the start of much more, it's laying the foundations for future carbon capture and storage projects in north-west Europe.

Porthos is building an infrastructure to transport CO_2 from industry in the port of Rotterdam to depleted gas fields under the North Sea. Porthos customers Shell, ExxonMobil, Air Liquide and Air Products will supply O_2 to an open-access pipeline running through the Rotterdam port area. The CO_2 will be transported via an offshore pipeline to an existing platform in the North Sea, approximately 20km off the coast. From this platform, the CO_2 will be pumped into depleted gas fields. The depleted gas fields are located in a sealed reservoir of porous sandstone more than 3 kilometres beneath the North Sea.

CO_2 storage within the Porthos project can bridge the time needed for industry to switch from fossil fuels to low- or zero-carbon alternatives. The construction of the Porthos onshore open access pipeline marks the start of the development of a future CO_2 network in Northwest Europe.

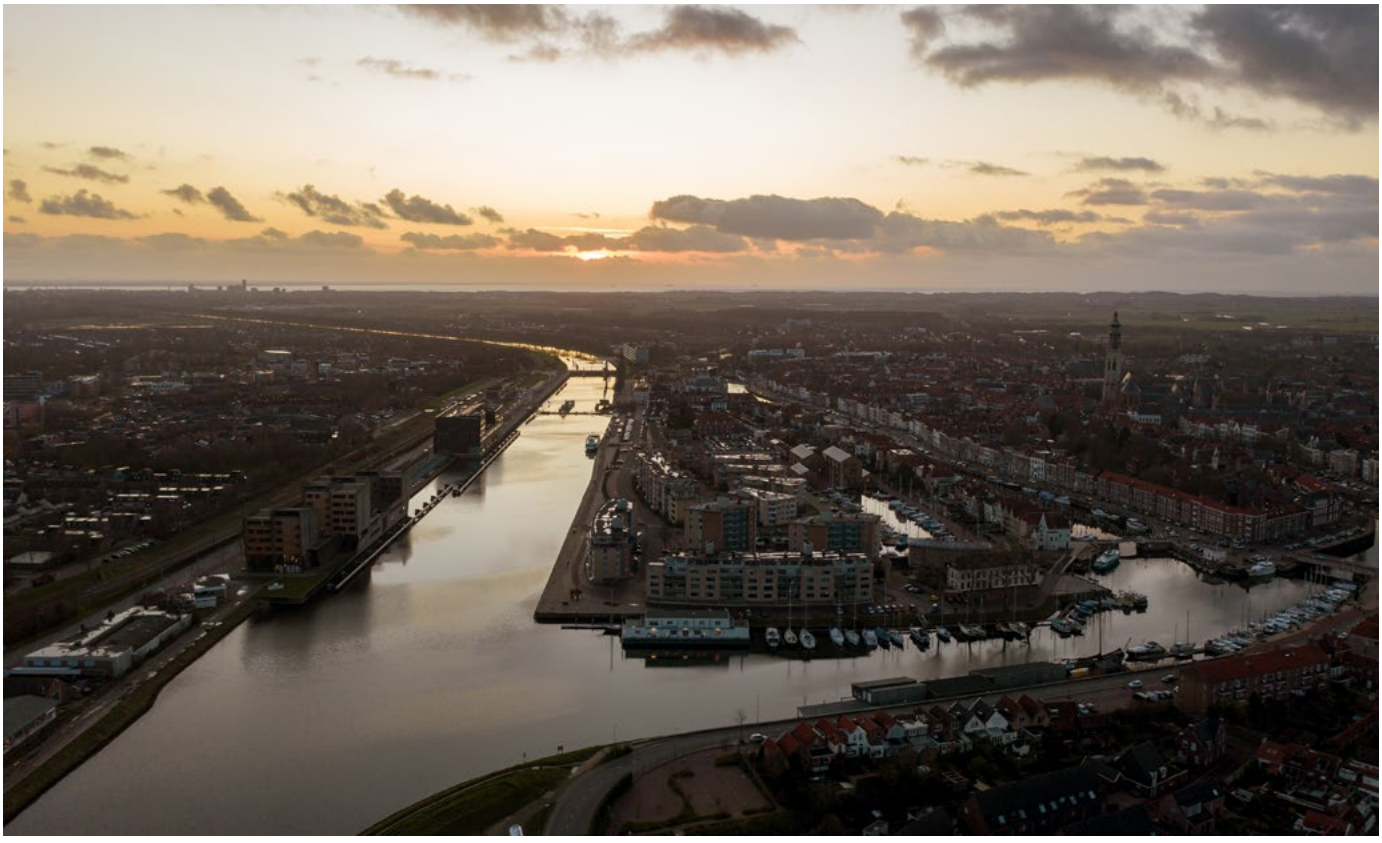
While Porthos will transport 2.5m tonnes per year, the onshore Porthos pipeline is ready for 10m tonnes, so it can also supply CO_2 to future projects like Aramis.

The compressor station is also ready for expansion. It forms the heart of the future CO_2 hub, to which also CO_2next can be connected. This liquid CO_2 terminal will be able to receive and deliver liquid CO_2 by ship for customers not connected to a pipeline.

Boudewijn Siemons, CEO of the Port of Rotterdam, says: "This project is an important contribution to the goal of a 55% reduction in CO_2 emissions in the Rotterdam port area by 2030 and a CO_2-neutral port by 2050. It is the start of a CO_2 infrastructure in the port that will enable future CO_2 storage projects to reduce CO_2 emissions and projects to use CO_2 as a feedstock. As a European energy port, we are facilitating the development of CO_2 infrastructure and connections with neighbouring countries to enable the reduction of CO_2 emissions from European industry".

The 30km collector pipeline through the Rotterdam port area is currently being constructed at various locations in the port. Construction of the Maasvlakte compressor station and cooling water pumping station will start later this month.

Three compressors will work together to bring the CO_2 to a maximum pressure of 130 bar for subsequent transfer to the offshore platform. Construction of the offshore pipeline and work on the platform will start in 2025. Porthos is expected to be operational in 2026.



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