

# BULK TERMINALS

SPRING 2023 *international*

THE OFFICIAL MAGAZINE OF THE ASSOCIATION OF BULK TERMINAL OPERATORS

## RISING STARS

Ports power up with next generation cranes and grabs

## ROOM FOR IMPROVEMENT

New legislation beefs up safety in enclosed spaces

## MOVING MOUNTAINS

The UN extends the Black Sea Grain initiative



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# SAFETY STAYS A PRIORITY

BY SANDRA SPEARES

Initiatives to accommodate sustainable shipping initiatives continue apace, but safety for seafarers always remains top of the list for the industry

**T**here have been some positive developments for bulk cargo operators in recent months as conditions relating to covid-19 continue to ease. However, the war in Ukraine continues to affect cargoes, with more movement on long-haul routes and the continuing attraction of commodities such as coal that can be used to fill the gaps in power supplies.

Collective approaches to doing business continue to be important and there have been a number of hook-ups between trade associations and major players to help keep goods moving and also collectively tackle the new legislation that is coming into play.

Port operators around the world are looking towards upcoming legislation relating to clean fuels. In Singapore, for example, in addition to biofuels, the port authority is exploring the use of hydrogen and ammonia to support the decarbonisation of international shipping. In December 2022, the Maritime and Port Authority of Singapore and the Energy Market Authority launched an Expression of

Interest (EOI) to build, own and operate low- or zero-carbon ammonia power generation and bunkering solutions on Jurong Island. The EOI is open until the end of April.

That said, there continue to be concerns over the safe use of some fuels, including ammonia, which are being promoted as alternatives to high sulphur products. Some sectors are more in favour of synthetic versions of fuels such as liquefied gas, which already has a track record and a supply system that does not have to be built from scratch.

There have also been moves to introduce new legislation to protect seafarers. One example of recent developments is the UK's Seafarers' Wages Act, which received Royal Assent in March this year and is now law as part of the UK government's initiative to crack down on unfair practices, end exploitation and improve working conditions for seafarers.

As a key strand of the government's nine-point plan for seafarers, the new law is designed to protect those working on vessels operating an international

service from being paid less than the National Minimum Wage.

As always, safety issues continue to be on the agenda, not only from the point of view of enclosed spaces and the safe use thereof, but also with regard to the carriage of potentially hazardous products, such as lithium-ion batteries.

Recent guidelines outline measures to ensure the safe transport of an exponentially increasing volume of lithium-ion batteries. Their use in electronic devices is fully examined, with issues such as classification and regulation, container packing, landside storage, stowage onboard ships, incident detection and fire suppression, and loss prevention and risk mitigation.

These and many other issues will be discussed at the Bulk Terminals International Conference, taking place in Lisbon in October. Please visit [bulkterminals.org](http://bulkterminals.org) to book your places and ensure that you stay in the loop on all the important issues affecting the industry.

Meanwhile, I hope you enjoy this latest issue of *Bulk Terminal International*.

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Maritime AMC Ltd  
35 Beacon Drive,  
Newton Abbot  
TQ12 1GG  
T. +44 (0) 1626 681103  
E. [info@maritimeamc.com](mailto:info@maritimeamc.com)

[www.maritimeamc.com](http://www.maritimeamc.com)

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TERMINAL OPERATORS

PUBLISHED BY

EDITOR: SANDRA SPEARES

[SPEARES1@AOL.COM](mailto:SPEARES1@AOL.COM)

DESIGNER: JUSTIN IVES

[JUSTINDESIGN@LIVE.CO.UK](mailto:JUSTINDESIGN@LIVE.CO.UK)

PROJECT DIRECTOR: JONATHON FERRIS

[JONATHON.FERRIS@BULKTERMINALS.ORG](mailto:JONATHON.FERRIS@BULKTERMINALS.ORG)

PROJECT MANAGER: ALEX CORBOUDE

[ALEX.CORBOUDE@BULKTERMINALS.ORG](mailto:ALEX.CORBOUDE@BULKTERMINALS.ORG)

SUB-EDITOR: SAMANTHA ROBINSON

[SAM.ROBINSON.JOURNALIST@GMAIL.COM](mailto:SAM.ROBINSON.JOURNALIST@GMAIL.COM)

PUBLISHER: BILL ROBINSON

[PRODUCTION@BULKTERMINALS.ORG](mailto:PRODUCTION@BULKTERMINALS.ORG)

ABTO

35 BEACON DRIVE

NEWTON ABBOT

DEVON

TQ12 1GG

CHIEF EXECUTIVE: SIMON GUTTERIDGE

[CE@BULKTERMINALS.ORG](mailto:CE@BULKTERMINALS.ORG)

TECHNICAL ADVISER: IAN ADAMS

[TECH@BULKTERMINALS.ORG](mailto:TECH@BULKTERMINALS.ORG)

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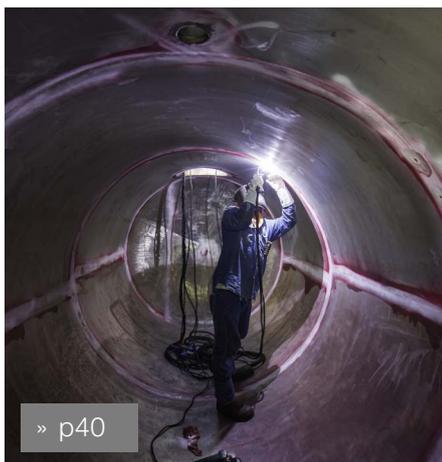
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# LOOKING FORWARD TO LISBON

BY SIMON GUTTERIDGE

This year, the Port of Lisbon is celebrating its 135th anniversary. So it is highly appropriate that Lisbon will be our host port for Bulk Terminals 2023, taking place on Wednesday 25 and Thursday 26 this coming October

**L**isbon is ideally located along the world's major maritime trade routes, connecting the Mediterranean region with Northern and Central Europe – enabling trade with America, the Far East, Africa and Europe.

ABTO is very grateful for the support of the Port of Lisbon Authority, our local organisers for the conference. Its offices are located on the banks of the Tagus

River, close to the picturesque area of Belém and also to the historic centre of the Portuguese capital Lisbon, which is just 10 minutes away. The conference will be held in one of the hotels in the vicinity.

Belém is Lisbon's westernmost district, where the Tagus River opens to the Atlantic. It was from here that many of the ships that mapped the world during the Age of Discovery departed. Vasco

da Gama left from these shores to India in 1497, discovering a new sea route to the East and starting global trade as we know it. Years before, in 1493, Christopher Columbus stopped by on his way back from the New World.

Everywhere you turn in Belém is a reminder of those times, and visiting this part of Lisbon is going on a journey through the history of the modern world.

It is home to some of Lisbon's most important monuments, such as the Jerónimos Monastery and the Belém Tower – both World Heritage Sites. Their sensational architecture is the result of the spice trade, the opening of trade with Japan, and the colonisation of Brazil and parts of Africa and Asia.

These monuments are adorned and embellished with motifs of exotic lands elaborately carved in stone, as are the heroes of the age on the colossal Monument to the Discoveries

Now as it was then, Lisbon is ideally located along the world's major maritime trade routes, connecting the Mediterranean region with Northern



and Central Europe – enabling trade with America, the Far East, Africa and Europe.

The port offers excellent conditions for the handling of all types of solid bulks. Agri-foodstuffs is a major segment, with a storage capacity of more than 420,000 tonnes, serving the oilseeds, edible oils and biodiesel markets. Clinker and cement trades are also served through a dedicated terminal with good river, road and rail access. The handling capacity for cargoes serving the steelmaking industry is more than seven million tonnes a year.

Each year, the annual ABTO Bulk Terminals conference focuses on the concerns of operators – offering sound practical solutions to terminal operators for streamlining operations, ensuring environmental protection and, not least, improving safety.

In our last issue of *Bulk Terminals International* (winter 2023), I wrote in some detail how at Lisbon we will be covering the enclosed space fatalities, which continue to happen to stevedores and vessel crew members with chilling regularity. This is despite the knowledge of the dangers – at least at a senior level within the bulk shipping and terminal industries – that enclosed spaces can present, since attention is drawn to the dangers of enclosed spaces in every safety course.

By the time of the conference in October, the investigation that is being carried out by the UK's Marine Accident Investigation Branch (MAIB) into the three fatal injuries to stevedores that occurred in a cargo hold on board the *Berge Mawson* (an Isle of Man registered bulk carrier, while loading coal at the Bunyu anchorage in Indonesia) should have been published. We will give a sharp focus on the report's conclusions and discuss industry proposals to prevent future fatalities.

The Lisbon conference will, as always, set the scene for consideration of the other matters with the traditional analysis of bulk markets: what has happened in the previous year and what the coming year holds for operators.

Bulk markets are often characterised

by volatile movements, making future predictions difficult at the best of times. And 2022 was a particularly turbulent year. Although a market downturn was predicted, it took a turn far more severe than many thought it would be.

The conflict in Ukraine continued uncertainty around grain exports, exacerbating covid-19 and climate factors. While in November 2022 the UN- and Turkish-brokered deal to permit the export of Ukrainian grain was reinstated after a break, who knows how long it will hold? Russia and Ukraine are still at war so the continuation of the arrangement remains, to say the least, uncertain. This uncertainty in the supply of grain from one of the world's main sources continues to leave food security at high risk. Furthermore, heatwaves and droughts in Latin America prevented relief from other quarters.

China, for long the driver of the major bulk markets, suffered an economic downturn, with damaging lockdowns and a decline in steel output. When reliable figures for 2022 finally emerge from China, the World Steel Association expects that the decline in Chinese steel prices to be in the region of 4%, after a 6.6% hike in the middle period of the year. These figures are as low as those pertaining at the beginning of the covid-19 pandemic in 2020.

Energy price increases affected all bulk markets dependent on high power usage. In Europe, manufacturers of fertilisers, vegetable oils and aluminium have cut production output because their plants have become more expensive to run.

High energy costs have caused European aluminium production in 2022 to fall to the lowest level since 1973. While not to the same degree, zinc and copper production in Europe has also fallen. If high energy rates continue, this will affect where buyers decide to source finished products, with implications for terminals handling the process raw materials.

The *Economist* magazine recently ran an article entitled 'Copper is the missing ingredient of the energy transition', so demand for the metal will only increase.

Notwithstanding that there are supply issues, that is not point from a bulk terminal perspective – the question mark is over where it will be processed.

What then for the rest of 2023 and beyond? Precise predictions from me would be foolhardy: I will leave an analysis of 2023 and predictions for 2024 to our experts in the opening Bulk Markets session in Lisbon this coming October.

Whatever they say about specific markets, the one thing that is probably safe to predict is that things will remain as uncertain and volatile as they were in 2022.

This will doubtless be due, to a lesser or further degree of different factors such as conflict (both directly on grain and coal as a consequence of the embargo on Russian energy); the degree to which superpower new cold war issues (for want of a better description) between the US and China impact on trade; economic growth or contraction on the major bulk trades – and not forgetting in the agricultural minor trades the effect on crop production of drought and climate change.

Our regular presenters for the Bulk Markets session at Bulk Terminals 2023 Lisbon will shine a spotlight on coal and minerals, to be joined by speakers looking at biomass and biofuels. They will be joined this year by João Roda, the Country Lead for BUNGE Ibérica Portugal, who will speak about 'Grain markets 20 months on from the conflict in Ukraine'.

Keep an eye on the Events section of our website for conference developments. The conference Chairman, Professor Mike Bradley, and myself look forward to welcoming you to Lisbon in October.

Meanwhile, I hope you enjoy our spring edition of *Bulk Terminals International*.

Stay in touch and stay safe.

**Simon Gutteridge**  
**Chief Executive, ABTO**  
**Tel: +33 (0)321 47 72 19**  
**Email: ce@bulkterminals.org**  
**bulkterminals.org**

# WORLD NEWS ROUND-UP

Green issues have continued to dominate the industry in recent months as operators seek to meet the requirements of a number of new regulations

**T**he EU agreed in March to the world's first green shipping fuels law. Ships will be required to increasingly switch to sustainable fuels and at least 2% of the bloc's shipping fuels will need to come from e-fuels derived from renewable electricity by 2034 at the latest. With negotiations ongoing at the International Maritime Organization, the global shipping regulator, Transport & Environment (T&E), says this marks the beginning of the end for dirty shipping fuels and should provide inspiration for other countries around the world.

Delphine Gozillon, sustainable shipping officer at T&E, says: "This decision marks the beginning of the end of dirty fuels in shipping. The EU is charting the way with the most ambitious package of green shipping laws ever adopted. This success should inspire other countries to do the same."

The EU's FuelEU Maritime law, agreed upon by all the EU bodies and member states, sends a strong signal to potential investors and fuel suppliers to start producing these green fuels for shipping, says T&E. E-fuels are one of the only options shipping has to decarbonise, where direct electrification for many vessels is not possible. However, the group warns that loopholes risk letting biofuels and low-carbon fuels in the backdoor. T&E has called on the EU to fix these when it revises the law by 2028.

The final agreement also includes stricter greenhouse gas intensity targets, as well as a bonus for the use of green e-fuels until 2035, with the so-called "multiplier of 2". This should make e-fuels more attractive to use from the entry into force of the regulation in 2025.

## NEW IMO SECRETARY-GENERAL

Seven International Maritime Organization (IMO) member states have each nominated a candidate for the post of secretary-general of the IMO. The term of the current incumbent, Kitack Lim of the Republic of Korea, expires on 31 December 2023.

The nominations received by the deadline set for receipt of nominations of 31 March 2023 are as follows:

- » Moin Uddin Ahmed (Bangladesh)
- » Suat Hayri Aka (Türkiye)
- » Arsenio Antonio Dominguez Velasco (Panama)
- » Cleopatra Doumbia-Henry (Dominica)
- » Nancy Karigithu (Kenya)
- » Minna Kivimäki (Finland)
- » Zhang Xiaojie (China)

The election will take place at IMO headquarters on Tuesday 18 July. Following the election in July 2023, the decision of the council will be submitted to the 33rd session of the Assembly of IMO in late 2023. The Assembly will be invited to approve the appointment. The elected secretary-general will take office on 1 January 2024.

## CARGO THEFT IN SPOTLIGHT

The latest *Annual Cargo Theft Report for 2022* from partners TT Club, Transported Asset Protection Association's Europe, Middle East and Africa region (TAPA EMEA) and BSI Screen Intelligence (BSI) shows an overall decline in global incidents over the previous year, but with increasing emphasis on basic

goods, food and beverages, fuel and auto parts linked to the inflationary effect on the value of such items. Theft of high-value electronics remains constant.

As in the past, the united trend analysis and experience of the three organisations, international freight insurer TT Club, TAPA EMEA and BSI, the business improvement and standards consultants, supply concerted insight to the changing dynamics of cargo theft around the world. The report reflects this strength of observational data and comprehensive incident reporting.

The main conclusions are:

- » Consistent level of theft from facilities
- » Increase in container and trailer theft
- » Global reduction in hijackings
- » Easing of international losses from unsecured parking and from areas adjacent to port facilities
- » Inflationary trends affect black market demand for more basic goods
- » Food and beverages, auto parts and fuel all increasingly targeted
- » High-end electronics remain a frequent target

The over-arching trend is for criminals to adapt to inflation and lessened port congestion and evolve more fraudulent methods of targeting specific goods. "Our report explores these themes in more detail by way of case studies that look at how social unrest in Latin America, particularly Chile, Peru and Brazil, has provided a weakness exploited by thieves," points out Mike Yarwood, MD loss prevention at TT. "Also, how in South Asia crime involving fraudulent practices, like fictitious pickups to target cargo, are manifest."

Of the increases in various types of commodities stolen, TAPA EMEA identified a significant year-on-year rise in the number of fuel thefts recorded in the region, one of the most prominent trends recorded. "This is clearly driven by the impact of the war in Ukraine on global oil prices and the cost-of-living crisis affecting consumers in many countries," says Thorsten Neumann, president and CEO of TAPA EMEA.

"We gathered intelligence on fuel losses in 28 countries across EMEA, but mostly in Germany and the UK, which accounted for 72%. Higher value fuel crimes also signalled the involvement of bigger organised crime groups, notably thefts from fuel depots."

Consistent with past publications, advice on steps that can be taken to mitigate the risk of theft are offered in the report. "In particular, we are keen to give guidance on how operators can combat the practice of fictitious pick-ups and the threat of insider influence in cargo crime," says David Fairnie, BSI's principal consultant on supply chain security.

"Our guidelines are extensive and they can help to reduce risk and enhance the overall security and resilience of the supply chain. However, it's important to recognise that there is no one-size-fits-all approach. Each organisation must develop a tailored risk management plan based on its specific risks and circumstances."

The 2022 Cargo Theft Report is available for download free of charge. Visit: [tinyurl.com/BTI-CargoTheftReport](https://tinyurl.com/BTI-CargoTheftReport)

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## NEW ZEALAND UPS SAFETY

The New Zealand Port Health and Safety Leadership Group – made up of unions, ports and stevedoring companies, the Port Industry Association, Maritime NZ and WorkSafe – has released its advice to the Minister of Transport, a multi-year Port Sector Insights Picture and Action Plan to make ports safer.

This follows the tragic deaths of two port workers in 2022, after which the Minister of Transport asked the Port Health and Safety Leadership Group for advice to address health and safety in ports.

The plan pulls together information from fatalities, injuries, incidents, near-misses, regulatory notifications, investigations and assessments, worker surveys, and worker interviews and workshops to build a picture of what drives serious harm in ports – who it is happening to, and why. It lays out six key interventions where changes can have a real impact:

- » Implementing the *Fatigue Risk Management System: Good Practice Guidelines* to reduce the risks associated with worker fatigue.
- » Putting in place an Approved Code of Practice around loading and unloading of cargo to implement more consistent regulatory standards in relation to some of the highest risk activities in ports.
- » Recommending the government extend the Maritime NZ designation to cover the whole port.
- » Work to improve incident reporting, notifications, insights and learning across the ports, so the sector can get better real time understanding of harm and take necessary action.
- » Action to improve training and workforce issues.
- » Actions to ensure there are easier ways of sharing good practice that the sector is doing here, or overseas, to encourage continuous improvement in ports.

“We owe it to those working in ports every day, the people who have died, their families, and those who have been injured, to improve safety on ports,” says port health and safety leadership

group chair and Maritime NZ chief executive Kirstie Hewlett. “We have built a comprehensive picture of why and where harm is happening in ports. All port and stevedoring companies, regulators, and many workers, have contributed significant data, insights and time to develop this picture, which is the foundation for our multi-year harm prevention programme. This is already providing valuable insights to sector participants on where to target their effort.”

Maritime Union of New Zealand national secretary, Craig Harrison, says the plan is a crucial step in improving safety on ports. “While research shows that over time serious injuries in ports have declined, there is still more work to do. Hearing workers’ voices and including workers’ experiences has been vital.”

Ports of Auckland chief executive, Roger Gray says the sector is making a firm commitment to its workers and their families. “The leadership group has already started implementing the action plan. We have published fatigue risk management guidelines, started training and want all organisations employing workers in ports to have at least started a fatigue risk-management system by September.

“Work on an approved code of practice for loading and unloading cargo is well underway, and there is a lot more to come.”

The group has presented the plan to the minister for workplace relations and safety, and transport, Michael Wood, who has endorsed it.

## NET-ZERO INDUSTRY ACT

European shipowners, under the aegis of the European Community Shipowners’ Associations (ECSA), have given their seal of approval to the EU’s proposed Net-Zero Industry Act, which seeks to enhance Europe’s security and to support the energy transition of European industry.

However, ECSA says: “The new Act must properly recognise the strategic role of shipping for Europe’s security. The shipping industry is a cornerstone of

European security: energy security, food security, security of supply of goods. This is a unique opportunity for Europe to foster the sector’s competitiveness.”

The new Industry Act aims to accelerate the decarbonisation of the European economy. As shipping is one of the most difficult to decarbonise sectors, the upscaling of affordable low- and zero-carbon fuels and technologies for the sector is key.

For this reason, renewable fuels of non-biological origin should be included within the Act’s definition of “strategic net-zero technologies”, so that dedicated production capacity can be swiftly developed, the association says. In addition, ECSA welcomes the inclusion of offshore renewable technologies and carbon capture and storage in the list of strategic net-zero technologies.

“European shipowners believe that the Net-Zero Industry Act can be instrumental in supporting the competitiveness of European industry while accelerating the energy transition,” says ECSA’s secretary general Sotiris Raptis.

“The strategic role of shipping for Europe’s energy security, food security and security of supply of goods must be properly recognised. In this context, we welcome the support for the faster uptake of offshore technologies, for which shipping already plays a critical role. But the industry is still missing a clear plan for the development of a European supply chain for clean marine fuels and technologies.”

## LINER TECHNOLOGY UPGRADE

Conveyor components manufacturer Martin Engineering has introduced a new standard in wear liner technology. The manufactured canoe liner from Martin Engineering is made from durable urethane moulded around a rugged steel plate to absorb impact and abrasion from the punishing bulk handling environment.

With the protective plate integrated directly into the urethane liner, the design delivers superior shielding of the skirt sealing system and chute wall from

heavy, fast-moving cargo. The result is extended equipment life, longer periods of dust and spillage control, improved safety and less maintenance, reducing the overall cost of operation.

“This is a shift in the engineering and role of wear liners,” says Dave Mueller, manager of conveyor products for Martin Engineering. “Like most conveyor components, the design has evolved into a component that is more effective, safer to maintain and more reliable.”

## RORO NEWBUILDS FIRST

MacGregor, part of Cargotec, has received a large order for comprehensive packages of ro-ro equipment for a total of two dual-fuel liquefied natural gas pure car and truck carrier (PCTC) vessels.

These PCTC vessels will be built at Fujian Mawei Shipbuilding for Sallaum Lines. Sallaum Lines specialises in

global ro-ro cargo shipping, and these two newly ordered vessels will be the company’s very first newbuildings.

The order was booked into Cargotec’s 2023 first quarter orders received. The vessels are scheduled to be delivered to the shipowner between the fourth quarter of 2024 and the second quarter of 2026.

MacGregor’s scope of supply encompasses design, supply and installation support of ro-ro and car deck equipment to the ordered vessels. This includes electrically operated external and internal ramps, liftable car decks, covers and doors for the two new PCTC vessels.

“We are excited to partner with MacGregor for the development of our first new buildings,” says Puneet Arora, technical manager of Sallaum Lines. “Its extensive experience and

expertise in providing state-of-the-art ro-ro equipment are crucial for Sallaum Lines as we continue to expand our fleet and maintain our commitment to efficient and environmentally-friendly transportation solutions. This collaboration further strengthens our position in the global ro-ro cargo shipping market.”

“I’m happy that the long cooperation with Fujian Mawei Shipbuilding Ltd and new collaboration with Sallaum Lines have led us to become the supplier for the ro-ro equipment for Sallaum Lines’ first ever newbuildings,” says Magnus Sjöberg, senior vice president, merchant solutions, MacGregor. “We are delighted to be part of this milestone. Our proven and reliable ro-ro solutions as well as our global service network have been proven to be important for our globally operating customers.”



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# NEUERO: KICK-STARTING INNOVATION

## COMPANY NEWS

**French agri-food group Soufflet in Rouen recently took delivery of the new Neuero Kiko (kick-in kick-out) shiploader, which has a loading capacity of up to 1,200t/h of grain with minimal dust emission. After four successful installations in the region, the Neuero Kiko DSH (dust suppression head) has impressed port operators with its efficient operation and high dust suppression, due to mass flow control.**

The shiploader was assembled in Germany and transported using a heavy lift ship to France. The most significant advantage of this means of transport is the short downtime of the terminal. However, such transport is not easy and requires a lot

of planning and preparation. Therefore Neuero and Soufflet already agreed on this shipment method at the beginning of the project so that lifting points and lashing points could be integrated into the machine design.

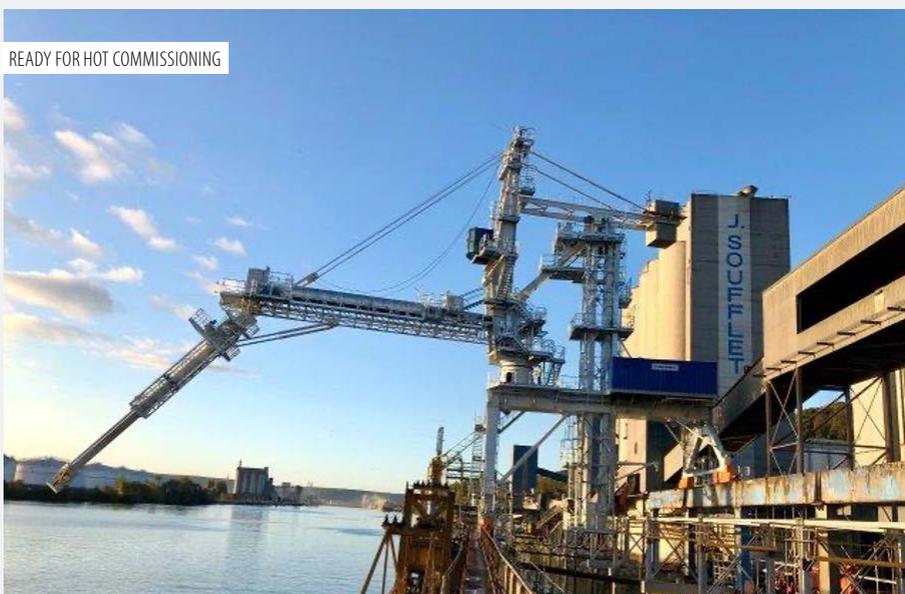
Heavy lift cranes set the shiploader into position at the site and Neuero was able to begin dry testing. The next step was hot commissioning after the site conveyor was ready.

So what is the difference that makes the Kiko DSH operate so efficiently and with the highest environmental standards available today? The answer is a combination of mass flow and pendulum movements. The mass flow allows loading

of the cargo at low speeds, reducing dust emission. The shiploader does not eliminate dust completely, but reduces it significantly, therefore avoiding product segregation and slow material discharge speed. Older systems throw the product at boom height and try to stop it at arrival, especially during hatch trimming work where it is needed to fill all gaps.

The pendulum movement that we call Kiko allows the loading head to move simultaneously with the vertical telescope and enclosed system. Additionally, the slewing movement allows all areas of the hold to be reached, including the corners.

**For more information, visit: [neuero.de/en](https://neuero.de/en)**



READY FOR HOT COMMISSIONING



DEPARTING FROM GERMANY



# HIGHER POWER

As ports continue to try and improve their efficiency and speed of operation, there have been plenty of new orders for lifting equipment in recent months

**P**SA Sines, the Portuguese subsidiary of PSA International, will for the first time venture into automated rubber-tyred gantry (aRTG) systems with the purchase of six electric-powered aRTGs from Konecranes. The cranes will be delivered in the first quarter of 2024.

The fully automated cranes will improve efficiency, performance and safety at PSA Sines, as well as support the terminal's expansion plans. When its new phase is completed, the terminal will almost double its annual handling capacity from 2.3m to 4.1m TEUs.

The new aRTGs will have the capability to stack up to five containers, instead of only three with straddle carriers. Truck handling and exceptions will be managed via a remote operating station for increased safety, by minimising man-machine interaction.

"This equipment is PSA Sines' first venture into automated yard equipment," says Balachandran Krishnamurthi, director (projects) at PSA Sines. "We need a supplier with the experience, service support and know-how in automating the truck lanes and yard stacking operations. It is also essential that the supplier can integrate its equipment with our in-house

equipment control system. Konecranes is able to give us confidence in its ability to meet our needs.

"Our collaboration with PSA Sines is an excellent example of Konecranes' path to port automation, where container terminals improve productivity and safety in manageable steps," says Jussi Sarpio, director, automated yard cranes, port solutions, Konecranes. "From smart features to full automation, the path can include supervised operations to remote operations, to smoothly introduce the power of automation."

The new state-of-the-art equipment will reinforce PSA Sines' position as one of the main ports of the Iberia Peninsula and contribute towards the company's sustainable goals by reducing its carbon footprint.

#### **Largest-ever RTG order**

Meanwhile, the Georgia Ports Authority (GPA) in Savannah has ordered 55 hybrid Konecranes rubber-tyred gantry (RTG) cranes as part of the expansion of its existing operations at the Ocean Terminal facility. The order, which is Konecranes' largest-ever for RTGs, was booked in Q1 2023 and deliveries will take place in 2024 and 2025.

"This significant investment in new equipment will help prepare the Port of Savannah to handle more ships and cargo while maintaining the world-class service our customers have come to expect," says GPA executive director Griff Lynch. "Konecranes' new machines will expand our capabilities, operate at lower cost and leave a smaller carbon footprint than convention diesel cranes."

### Barge cranes head to Guinea

In the first quarter of the year, Konecranes won an order for two Konecranes Gottwald cranes on barge from Winning Logistics in Guinea. After on-site commissioning in the third quarter of 2024, Winning will operate a total of 10 Konecranes Gottwald cranes on barge, loading ships with bauxite off the West African coast.

Konecranes Gottwald cranes on barge are specially designed to ensure uninterrupted material flow on water, even under demanding conditions. They can operate in winds of up to 24m/s and at maximum wave heights of 2.5m.

### BALTIC HUB ORDERS RETROFIT

The Baltic Hub, formerly DCT Gdansk, has commissioned Liebherr Container Cranes to retrofit a hybrid green energy storage solution on one of its Liebherr rubber-tyred gantries (RTGs). The terminal has 18 Liebherr RTGs at the port and the initial purchase will allow the Baltic Hub to assess the technology with a view to further retrofitting its fleet of Liebherr RTG with the system.

The retrofit sees the addition of a Liduro energy storage system, along with exchanging the existing 13L genset with a smaller 8L genset. This will allow the RTG to operate at the same speed and productivity, while reducing operating costs and delivering substantial environmental benefits, including a reduction in emissions and carbon footprint.

According to Oran Kane, Liebherr's container cranes head of department for upgrades and modifications, the retrofitting of the Liduro energy storage system is a natural choice.

"Baltic Hub, like many ports and terminals worldwide, is working to minimise its impact on the environment,

through reducing its carbon footprint. The green energy solution that it has chosen, not only makes a significant reduction in the amount of energy consumed and the amount of emissions released, but the return on investment is clear to see, with the retrofit paying for itself in the short term.

"With such benefits on offer, the green energy retrofit is an easy win for our customers. The technology represents the future of energy storage in container handling, and we are proud to be at the forefront of this innovation."

At the heart of the system is the Liduro LES 200, a capacitor system designed and developed by Liebherr-Electronics and Drives GmbH. The system is designed to capture and store energy generated during hoist lowering and braking that would otherwise be wasted. The stored energy is then deployed during the hoisting cycle to reduce the overall demand on the genset, allowing for a reduction in fuel consumed and a reduction in emissions. Dual layer capacitors are capable of rapidly charging and discharging many times, without a drop in performance, making them an ideal solution for applications requiring high power and short-duration energy storage, such as that found in container handling.

By utilising this innovative technology, the RTG crane will have access to reliable, high-power energy during peak demand periods. The system is modular and depending on the operational requirements of the port, single or multiple units may be installed to a single RTG.

The Liduro energy storage system is available on new Liebherr RTGs or can be retrofitted to existing Liebherr RTGs through Liebherr specialist retrofit and upgrade team, Liebherr Transform.

### Battery powered first in Hong Kong

A handover ceremony to celebrate Gammon Construction taking possession of Hong Kong's first battery-powered crawler crane was held earlier in the year. Introduction of Liebherr's LR 1160.1 unplugged to its plant fleet marks a milestone on Gammon's journey to achieving its company-wide emission reduction targets, which are in line with climate science and the Science-Based Target Initiative (SBTI).

Delivered from Austria and with a maximum lifting capacity of 160 metric tonnes, the new crawler crane will be deployed on Gammon's Terminal 2 Expansion project at Hong Kong International Airport. The crane, with its alternative drive system, enables a healthier working environment for everyone working on site, and a net carbon saving of nearly 76 metric tonnes CO<sub>2</sub>e every year. It can also be used in both plugged and unplugged modes, which provides flexibility in its site deployment. In addition, the battery has a short charging time of only 4.5 hours.

"With our unplugged cranes, we offer our customers an alternative drive design," says Andreas Ganahl, managing director for sales at Liebherr (HKG). As we have already seen with the LB 16 unplugged, the first battery-powered drilling rig, the strategy is a complete success. Strict requirements regarding



THE HANDOVER CEREMONY CELEBRATED LIEBHERR'S LR 1160.1 UNPLUGGED'S ARRIVAL IN HONG KONG

environmental sustainability in tenders for construction projects increase the demand for advanced technologies. For us, it was clear that we extend and successfully establish the design in further product groups."

Gammon chief executive Kevin O'Brien says: "Gammon believes business sustainability and environmental sustainability are inherently interlinked. The introduction of the first electric crawler crane to Hong Kong demonstrates Gammon's commitment towards net zero. We look forward to having quieter, cleaner and lower carbon construction sites in the future."

Under the SBTi commitment, Gammon is setting two targets for 2033: first, cutting 55% of the company's absolute energy-related emissions through early site electrification, the deployment of electric plant and vehicles, increased energy efficiency and the adoption of modern methods of construction; and second, reducing the

company's indirect emissions – mainly the embodied carbon in materials – by 33% through modularisation and reuse of structural steel, lower carbon concrete mixes, procurement of lower carbon steel, optimised material usage through design and construction methods, and selection of alternative materials with a lower carbon footprint.

**Azerbaijan contract**

Liebherr-MCCtec Rostock has also recently delivered four new offshore cranes from the Board Offshore Crane (BOS) series to the Umid Babek Operating Company (UBOC) for its Umid-2 gas project in Azerbaijan. The order includes two BOS 2600 with a maximum lifting capacity of 45 tonnes, as well as two BOS 4200, which can lift 50 tonnes.

"This was a technically very demanding project that met the high safety requirements of the oil and gas industry," comments Stefan Schneider,

Liebherr global application manager general purpose offshore cranes. "The successful delivery is a testament to Liebherr's expertise and professionalism. The collaboration, which involved technical clarification and commercial negotiations in the run-up, to the conclusion of the contract and final delivery, was characterised by great professionalism and a goal-orientated approach on both sides,.

The BOS series is known for its modular design, with standardised components and high reliability. The crane design is certified by the American Bureau of Shipping and meets the requirements of the API design code. Both cranes, the BOS 2600 and the BOS 4200, have a lattice boom with a maximum outreach of 48m on the main hoist and 53m on the auxiliary hoist. They are electro-hydraulically driven and equipped with Liebherr Litronic, a control system for precise crane operation.



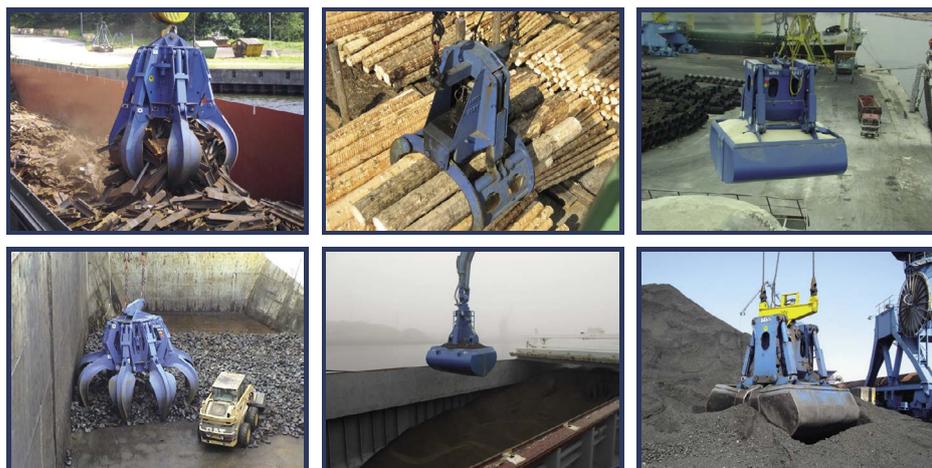
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# MACHINE, REPAIR AND SERVICES

## COMPANY NEWS



**Established in 1977, MRS Greifer GmbH is a leading engineering company providing design, manufacture, supply and after sales services for grab buckets up to 30m<sup>3</sup> capacity. Our commitment to continuous research and development ensures our grabs are world leaders in terms of technology, quality and performance.**

With five decades of experience in the design, manufacture, research and development of grabs, plus an extensive after-sales service backed by our team of highly skilled engineers, MRS Grabs has clients from every corner of the world.

We design grabs to fully meet the needs of our clients and the parameters within which they work, producing equipment capable of unloading all kinds of bulk cargo. Our machines include the latest features and are of optimal weight, ensuring an exemplary performance for a longer period of time. When it comes to hydraulics and other outsourced parts, we only use trusted brands so the highest quality is ensured.



Each grab is manufactured under the industry's strict quality controls, according to the QAP approved by our experts. We are only too aware that delays in shipping can result in exorbitant costs so we keep a full stock of spare parts, and our committed after-sales service team is available to see to all our customers' needs in the quickest possible time.

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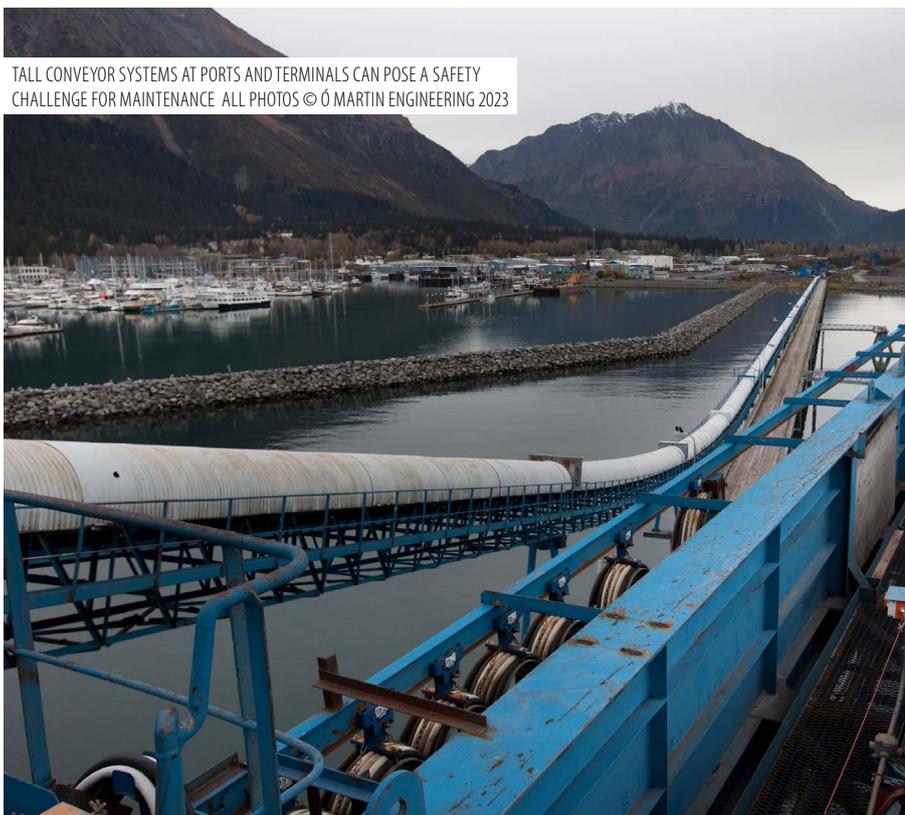


**For more information, contact:**  
**MRS Greifer GmbH**  
 Talweg 15 - 17  
 74921 Helmstadt  
 Tel: +49 7263 9129-15  
 Fax: +49 7263 9129-12  
 Email: [export@mrs-greifer.de](mailto:export@mrs-greifer.de)  
[mrs-greifer.de](http://mrs-greifer.de)



# A CLEAN WINNER

Dave Mueller, conveyor products manager, Martin Engineering, explains why CleanScrape offers a low maintenance and reliable conveyor belt cleaner, providing up to four times the equipment life of conventional cleaners



TALL CONVEYOR SYSTEMS AT PORTS AND TERMINALS CAN POSE A SAFETY CHALLENGE FOR MAINTENANCE. ALL PHOTOS © Ó MARTIN ENGINEERING 2023

**P**orts and terminals employ stacker conveyors, tripper conveyors, and some of the tallest conveyor discharge points in the world to load the cargo holds of massive dry bulk carriers. If the belts of these tall conveyors are not adequately cleaned, material can cling to the belt and drop off on the return, causing spillage and dust to spread over a wide area.

In belt cleaning, blade tensioning and wear are the traits operators monitor closest. With various types of cargo passing through the terminal, conveyor belt cleaners (aka “scrapers”) should be able to handle the most punishing material to avoid wearing prematurely. Tensioning controls the pressure the blade puts on the belt, which affects the amount of carryback the blade removes. Over-tensioning can cause the blade and belt to wear prematurely, increase the frictional heat and static (a potential fire hazard) and run the risk of a pull-through or detachment leading to belt damage.



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**THIS IS HOW  
WE ROLL**



CLEANSRAPE'S INNOVATIVE DESIGN TAKES UP LESS ROOM THAN SOME OTHER PRIMARY CLEANERS



SPILLAGE ALONG THE SYSTEM BECAME A COSTLY ISSUE TO ADDRESS.



THE CLEANSRAPE RUNS NEARLY THE ENTIRE WIDTH OF THE BELT AND PULLEY

The height can limit access for workers to monitor and maintain belt cleaners, so it is important to find a cleaner that reliably cleans the belt, limits blade replacement and requires no tensioning. CleanScrape® is the only blade on the market that fulfills those criteria.

With low maintenance and up to four times the equipment life of conventional cleaners, CleanScrape is quickly becoming the standard cleaner for many operations. The unique design incorporates a matrix of tungsten carbide scrapers available in three different carbide metal grades to suit specific materials and belt structures. The blade is tensioned lightly against the belt to prevent damage to the belt or splices. Despite extremely low contact pressure between the belt and the cleaner, it has been shown to remove as much as 95% of potential carryback material.

Installed diagonally across the discharge pulley, the CleanScrape forms a three-dimensional curve beneath the discharge area that conforms to the pulley's shape, covering drum diameters from 300-2,000mm and belt widths from 400-3,000 mm with belts speeds up to 7.5 m/s.

Improved performance, less spillage, longer equipment life and easier maintenance reduce the labour needed for cleanup. Less staff exposure to the equipment means a safer operation and allows them to concentrate on other parts of the terminal, improving efficiency and lowering the cost of operation.

### CASE STUDY: TRANSNET PORT TERMINALS, SOUTH AFRICA

Transnet Port Terminal at Richards Bay is one of South Africa's largest ports. Eight of its conveyors transporting raw materials such as magnetite, chrome, coal, chloride and zircon were experiencing excessive spillage at the discharge zones. Fines were adhering to the 1,350mm to 1,500mm belts causing carryback to spill along the belt path, pile underneath the system and spill out into walkways.

Along with product loss, workers would have to be pulled from other duties to clean up under and around the system. Several different brands of primary and secondary cleaners were installed in an attempt to mitigate the problem, but they were unsuccessful.

Technicians from Martin Engineering South Africa were invited to inspect the system and resolve the spillage issue. Due to the varying nature of the material, technicians tested a CleanScrape Primary Cleaner. The cleaner was tensioned once upon installation, then required no further adjustment.

The CleanScrape delivered superior performance and lasted considerably longer than previous blades during testing, so managers installed units on all eight belts.

Operators report that spillage along the length of the systems has been drastically reduced and no longer piles up around the conveyor structures. The material discharge efficiency

has improved production and eased maintenance requirements, giving operators more control over labour costs, while reducing the need to perform potentially hazardous cleaning near the moving conveyor.

"There has been a huge improvement in the amount of spillage since the scrapers were installed," says a manager close to the project. "As a result, we will be installing more CleanScrape units to improve efficiency for the entire operation."



*Dave Mueller is a long-time employee of Martin Engineering, having started his career with the company in 1986, and has since established himself as an expert in conveyor accessories. A graduate of Penn Foster College in the US with a BA in Business Management, he has 10 years in research and development on conveyor products, 26 years as conveyor product manager, is a prolific contributor of articles and has several patents.*

# N.M. HEILIG: ENSURING A SMOOTH OPERATION

## COMPANY NEWS



THE BRIDGE SECTION WAS TRANSPORTED BY ROAD AND ARRIVED IN THE MIDDLE OF THE NIGHT

**When a 200m long quay that was more than 100 years old and the loading system on it were in urgent need of replacement, Netherlands-based Walhout Maritime called on N.M. Heilig to ensure everything went smoothly.**

Walhout Maritime specialises in keeping storage and transshipment companies operational by realising or maintaining mooring facilities during quay construction and maintenance. Since these components are the lifeblood of these companies, an integrated approach is necessary.

N.M. Heilig – part of Heilig Group – worked on a new loading portal for fertiliser manufacturer Rosier Nederland at the quay in Sas van Gent, collaborating on the ideal solution for loading and unloading facilities and working out the entire process from design and choice of materials to implementation.

The challenge was that Rosier's storage and transshipment activities had to continue during the 10-month quay replacement. During this time, eight temporary mooring facilities were used so that construction could continue while ships were loaded.

Once the main construction of the quay was completed with the old shiploader retained, everything was set in motion to dismantle the old loader and install and commission the new loader within two weeks.

In order to carry out the replacement of the loading portal as efficiently as possible, N.M. Heilig constructed a parallel workflow, beginning the construction of the new shiploader as work began on the quay repair. With its large workshop, N.M. Heilig was able to assemble, mount and prepare the whole bridge section for transport.

During the design, the maximum dimensions of the bridge section were taken into account, so that it could be transported on the public highway with the necessary transport guidance.

After four hours, the more than 36m-long, 4.5m-wide and 110,000kg heavy bridge section arrived in Sas van Gent in the middle of the night, where it was lifted and placed the next day using two telescopic cranes.

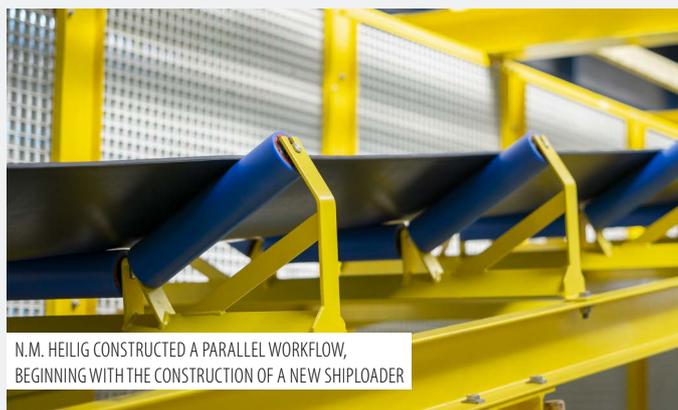
Rosier has been making high-quality fertilisers for 140 years and is active in 120 countries, contributing to sustainable and efficient global food production. The new shiploader loads ships quickly and efficiently for fertiliser distribution and is retractable, extendable and therefore mobile, allowing even or angled loading across the vessel at a speed of 300 tonnes per hour. A special bellows function has been applied to reduce dust formation, which can go over a 6m ship railing, so it is suitable for both barge and coaster. The control cabin, meanwhile, is fully executed by Beemster Electrical Solutions, also part of the Heilig Group.

By making use of several companies within the Heilig Group, a smooth-running process with little disruption to the companies involved was ensured. After two years, it is an impressive final result.

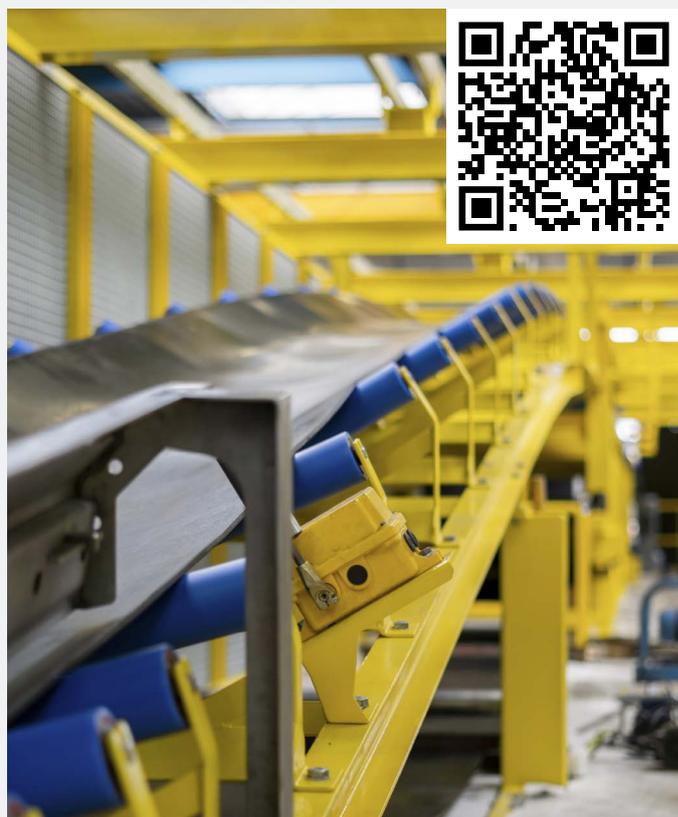
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N.M. HEILIG CONSTRUCTED A PARALLEL WORKFLOW, BEGINNING WITH THE CONSTRUCTION OF A NEW SHIPLOADER



# BEDESCHI: HANDLING EVERY SITUATION

## COMPANY NEWS

**In the grain sector, Bedeschi is a manufacturing and project engineering company with a global outlook, skilled in the design, production and supply of machines and integrated systems for grain handling (shiploaders, ship unloaders, belt conveyors, pipe conveyors, enclosed conveyors and any other ancillary equipment). The company can offer a complete range of equipment for the food industry and has the capability to integrate any ancillary or process equipment to provide a complete system.**

Bedeschi has a global presence; its latest branch opening was announced just recently in Australia. It can therefore customise any equipment to comply with any local standard or company

specification. Its expertise goes beyond the evaluation of technical challenges and is aimed at optimising design, manufacturing, transportation and erection.

Bedeschi can load and unload to or from ships of any size any kind of bulk material, either free flowing (wheat, corn), highly abrasive (rice, soya beans, barley) or non-free-flowing (meals, DDGS). Productivity ranges are from 100-3000t/h.

Thanks to its extensive experience, Bedeschi is skilled in providing equipment of any size delivered in pieces and assembled locally, as well as delivering fully built to site. Its transshipment expertise completes and complements its range of on-shore solutions.

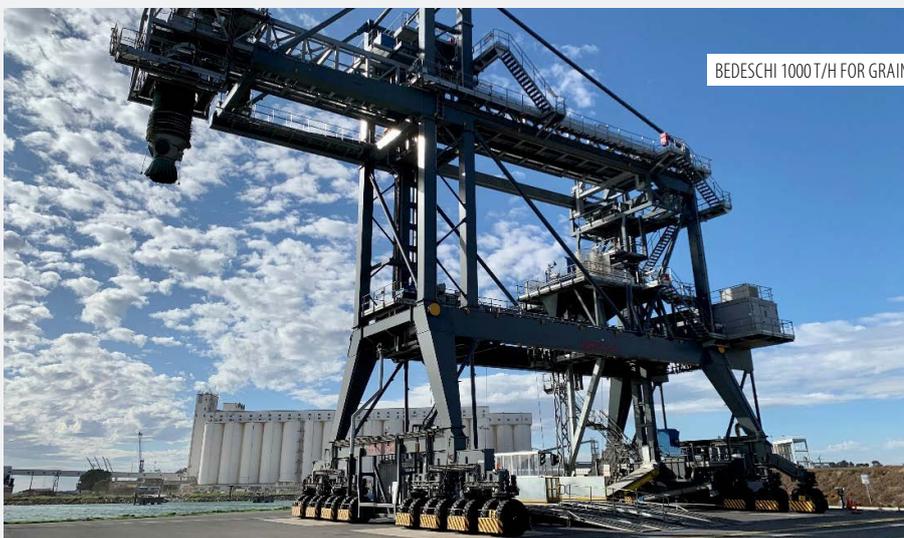
## SHIPLoadERS

Every shiploader is designed to match the specific project requirements and the client's specific needs. This is why Bedeschi supplies customised solutions to maximise efficiency and environmental protection.

Some shiploaders have a shuttle-type delivery boom with reversible belts; others have a retractable mechanism capable of extending the outreach. Meanwhile, others are fitted with a straight delivery spout and some have a distributing chute designed to deliver cargo in all parts of the hold to avoid unused spaces.

Bedeschi still proudly offers tailor-made solutions for its customers, with highly standardised components manufactured in its Italian workshop combined with the best engineering to optimise investment returns. This means well-designed installations and innovative mechanical solutions for the wide range of machinery. The company can offer slewing luffing and telescopic SHL, slewing luffing and travelling SHL and luffing and travelling (A-frame).

Bedeschi can also offer a rubber-mounted travelling SHL, which is a simpler solution to avoid civil works on the dock and is ideal for lower capacity and smaller vessels. Modular trucks with a discharging hopper interface with upstream conveyors or self-propelled solutions.



BEDESCHI 1000 T/H FOR GRAIN

### Case study: Cargill, Australia

This is the most recent example of a rubber-mounted travelling SHL and is also one of the best examples of Bedeschi's engineering and manufacturing capabilities.

This shiploader, fully mobile on rubber tyres, can load grains and oilseeds on panamax ships at a capacity of 1000 t/h, received from trucks on a two-lane drive over hopper fully integrated and mobile with the shiploader itself. It can weigh and clean products by means of a twin set of scalpels, sample according to local standards and finally load the product dust free by a Cleveland Cascade telescopic chute.

Moreover, due to the reduced availability of the receiving quay, the machine was delivered at site fully erected and dry tested.

## SHIP UNLOADERS

Bedeschi can offer a wide range of mechanical ship unloaders for vessels up to 120,000dwt, fixed or mobile on rails or wheels, with a handling capacity from 100-1,500tph. It can also provide pneumatic shipunloaders for vessels up to 20,000dwt, fixed or mobile on rails or wheels with a handling capacity of 100-300tph.

Ship unloading technology has evolved through in house know-how as well as acquisitions. To complement the bucket unloaders that are already part of the equipment line and mainly applied to high-capacity handling of coal and ores, the company has added chain elevator unloaders. This technology, even if it was already part of the portfolio, has been boosted by the acquisition of Berga (formerly part of GEA).

## ECO-HOPPERS

The Bedeschi eco-hopper is an economical and flexible solution that is able to satisfy the highest environmental standards thanks to its ability to minimise the

dust pollution, ensuring the maximum efficiency during the grab discharge cycle.

Eco hopper technology guaranteeing dust control consists of controlled flow spouts, air cleaning filters and dry fog, which uses micro drops of nebulised water to keep the surrounding environment clean. Eco hoppers combine dust suppression, a suction system and CF chute to facilitate dusty material handling through grabs.

Bedeschi's eco-hoppers are:

- » Scalable to different grab sizes (from 1-37m<sup>4</sup>)
- » Perfect with any kind of material as they are equipped with a pulse-jet bag filter with high filtration efficiency and less compressed air consumption
- » Able to discharge to conveyor, truck or Bedeschi apron feeder
- » Moveable on rubber tyres

### Case study: Ashdod Port, Israel

In the past few years, Bedeschi has supplied different equipment for grain and clinker handling to Ashdod Port. This equipment included three eco-hoppers and a continuous shipunloader. One hopper discharges clinker to trucks at up to 800t/h and the other two discharge grain at a rate of 550t/h. A filtering system prevents air pollution during filling and discharging.

During the process, the two conveyors receive grains from Bedeschi's continuous ship unloader. This shipunloader operates at a capacity of 1,200t/h and features a cutter able to unload free flowing as well as non-free flowing materials. Enhanced operation with increased capacity can be also achieved with full environmental credentials.

## CONVEYING SYSTEMS

The use of completely closed or pipe belt conveyors help to avoid emission and spillage of material. Moreover, the technology reduces the necessity of dust suppression systems, saving the energy usually required to operate them. This

system removes all the drops between conveyors that is a waste of energy and totally useless in the process. Without transfer towers, it saves a lot of steel, foundation works and building activities, thus reducing the carbon footprint of the plant and its environmental impact.

The use of enclosed belt conveyors and/or chain conveyors in ship unloading or shiploading systems ensures that the material is handled in a completely sealed environment, from the conveying path to the hold. The need for dedusting equipment is reduced to a minimum and often eliminated.

The application of pipe conveyor technology to the grain handling business is the most notable recent development. This kind of conveyor allows for dust-free operations (as the product is completely sealed by the rubber belt), reduced cost in supporting steel structures and galleries thanks to the reduced section and weight compared with a standard belt conveyor, and full lay-out flexibility as transfer towers not necessary for changes of height or direction of the conveyor.

### Case study: Renova, Argentina

This is the largest pipe conveyor ever commissioned in the grains and oilseed sector in Argentina, supplied by Bedeschi to Renova Plant in Rosario. It has a capacity of 1500t/h with a 700m length for soya beans.

This conveyor gives unprecedented flexibility in the lay out design, with no need for transfer towers and the possibility of bending and changing the inclination with a single belt. It also has dust-tight transfer of material and lower operational costs compared with traditional conveyors.

**For more information, visit:**  
**[bedeschi.com](http://bedeschi.com)**



**Bedeschi 900 m pipe conveyor  
for soya with a capacity of  
1500 t/h.**

**This pipe is the first in the  
Grain sector used in Argentina  
and one of the largest in Latin  
America.**





# IS GRAIN GETTING BACK ON TRACK?

With the continuing war in Ukraine, the UN has extended the Black Sea Grain Initiative in an attempt to get a flow of grain out of the country again

**A**s the war in Ukraine has continued to affect the movement of bulk shipments out of Ukrainian ports, there has been a renewal of the Black Sea Grain Initiative put in place to try and ease the flow of grain out of the country.

That said, the Russian government has said that the agreement may not continue going forward with the Kremlin saying that promises to stop blocks to Russian imports of agricultural products and fertilisers had not materialised.

The agreement allows for the export of food and fertiliser, including ammonia, from three Ukrainian Black Sea ports. While there are no sanctions in place on food and fertilisers, the Russian government has said that problems over insurance and payment procedures are resulting in the initiative being impossible to work in practice.



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The Black Sea Grain Initiative, a UN-brokered deal aimed at supplying markets with food and fertiliser amid global shortages and rising prices, exacerbated by the Ukraine war, was extended in March, although there have been many reports since that the system is not necessarily working smoothly.

The announcement of the initiative's extension was released by the UN Secretary-General's spokesperson's office, which emphasised that the Initiative allows for the "facilitation of the safe navigation for the exports of grain and related foodstuffs and fertilisers, including ammonia, from designated Ukrainian seaports."

Following the invasion of Ukraine by Russian forces in February 2022, the Initiative has been one of the few areas in which the Russian and Ukrainian governments have been able to reach agreement. It came about in response to the sharp increase in prices for food and fertilisers around the world: Russia and Ukraine are the main suppliers of these products to world markets and their ability to export was significantly curtailed once hostilities began.

Since the signing of the Initiative in July 2022, some 25m metric tons of grains and foodstuffs have been moved to 45 countries, and the initiative has been credited with helping to calm global food prices, which reached vertiginous highs in March 2022. Following the implementation of the Initiative, prices began to fall and, a year later, had dropped some 18%, according to the UN.

The deal was mediated by the UN and the government of Turkey and as part of the agreement, a Joint Coordination Centre (JCC) was established in Istanbul, to monitor the implementation of the Initiative.

The UN statement described the Black Sea Grain Initiative, alongside the Memorandum of Understanding on promoting Russian food products and fertilisers to the world markets, as "critical for global food security, especially for developing countries".

A further statement by the UN issued at the start of April noted that the JCC had not been able to conduct inspections as the parties needed

more time to reach an agreement on operational priorities. Following intensive discussions within the JCC, supported by the United Nations and Turkey, routine inspections were set to resume later in April.

As of 1 April, there were 50 vessels waiting to move to Ukrainian ports. The JCC has overseen and enabled the safe export of more than 27.5m metric tonnes of food since the Initiative was signed, contributing to the lowering of food prices.



The UN statement described the Black Sea Grain Initiative as 'critical for global food security, especially for developing countries

According to the UN: "This critical work is done against the backdrop of the ongoing war and active hostilities. We do not underestimate the challenges, but we know they can be overcome."

The UN team is working closely with all sides, taking into consideration all parties' concerns. The global humanitarian benefits of the Initiative are evident and are not limited to exports to specific low-income countries. It is in everyone's interest to keep it going."

The UN Food and Agriculture Organization reported on the March food price index, which marked a further drop of 2.1%. The index has fallen 20.5% in the last year. The renewal of the Black Sea Grain Initiative in November and March has contributed to this fall.

Through this Initiative, an essential source of supplies for the World Food Programme has been restored, with over half a million metric tonnes of wheat having been transported since August, supporting ongoing humanitarian operations in Afghanistan, the Horn of Africa and Yemen, according to UN figures.

"It is critical that all sides ensure the integrity and full implementation of the Initiative," the UN spokesperson added.

## IMMINGHAM BOOSTS GRAIN

Grain handling at the Port of Immingham is increasing thanks to the new opportunities presented by investment from owner Associated British Ports (ABP).

Two metal plate bunds, which can be set up on any quay on any surface, have been installed. They can also be sanitised between vessel discharges, meaning grain for human consumption can be handled. Operations are using the new Liebherr 420 mobile harbour cranes, which means faster and more time-efficient handling.

Simon Bird, regional director of Humber ports, says: "This is a cost-effective method of ensuring we can load on to any quay in inner dock. It's a developed and proven capability for operations to receive and load human consumption grains, which is part of our key competitiveness."

"ABP is keen to support our customers and we're delighted that one of the first to use the new grain-handling facility is Viterra, one of the UK's leading grain marketers. The Humber is a key player in the market and our continued investment into infrastructure and equipment maintains our agility and resilience."

Globally, Viterra is a world-leading agriculture network, active in 37 countries worldwide, marketing more than 100m metric tonnes of agricultural commodities per year. The company renewed its relationship with ABP Humber in April 2022 with the opening of a new 35,000mt storage facility located on the ABP Humber International Terminal. This is complemented by additional storage within ABP's Bulk Park facility located within the Port of Immingham.



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## CONSULTANCY SERVICES

Some of our Consultancy services include advising on:

- » Storage and Discharge of bulk materials
- » Pneumatic Conveying of bulk solids
- » Spoiling of materials in storage and in transit
- » Plant and Equipment design/redesign
- » Ship Unloading/ quayside operations
- » Control of plant wear
- » Dust control
- » Bulk Materials characterisation
- » ATEX/DSEAR compliance
- » Expert Witness services

## SHORT COURSES FOR INDUSTRY

We also provide a range of short courses to help delegates identify potential bulk materials handling problems and advise on how to avoid and/or overcome these issues. They fall under 4 main categories

### Pneumatic Conveying:

- » Pneumatic Conveying of Bulk Materials
- » Pneumatic Conveying System Design
- » Rotary Valves; Design, Selection and Operational Issues
- » Commissioning and Troubleshooting 'Hand's On' Pneumatic Conveying Systems

### Storage of Bulk Materials:

- » Storage and Discharge of Powders and Bulk Solids
- » Design of Equipment for Storing and Handling Bulk Materials
- » Biomass Handling, Feeding and Storage (can be adapted to other materials such as waste, recycled goods, pellets)

### General bulk materials handling:

- » Overview of Particulate Handling Technology
- » Port and Terminal Operations for Bulk Cargoes
- » Measurement of the Properties and Bulk Behaviour of Particulate Materials
- » Dust Control in Processes

### Specialist areas of concern:

- » Caking and Lump Formation in Powders and Bulk Solids
- » Undesired De-blending and Separation in Processes and Equipment
- » Electrostatics in Powder Handling
- » Numerical Modelling of Solids Handling and Processing
- » Powder Handling and Flow for Additive Manufacturing



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Speaking of the investment, Viterra UK managing director James Maw says: "These combined investments provide the necessary storage for Viterra's expanding import and export business, serving farmers and processors throughout Central and Eastern England.

"The Panamax berth capability, combined with the excellent road network around Immingham, will further add to the range and quality of services that Viterra provides to its customers."

The Port of Immingham is located in north Lincolnshire and is the largest port in the UK by volume of tonnage. It plays an important role in supporting UK supply chains for both imports and exports across Europe and beyond.

The inner dock can take cargo vessels between 4,000 and 27,500 tonnes. With an experienced ops team, it also ensures strict adherence to Trade Assurance Scheme for Combinable Crops accreditation.

Already loaded to vessel and planned to load before the end of March 2023 is 75,000 tonnes handled by the new grain loading system.

The UK has a large domestic surplus of grain and to make way for the 2023 harvest, stores will need clearing to make way for the new crop, which is seeing a bumper market in agribulks. The Port of Immingham's grain-handling facility is open to deep water vessels and can operate around the clock. There is a weighbridge close to the berths and access points for sampling the cargo adjacent to the quays

## PROJECTS AT INDIANA PORTS

Ports of Indiana has issued a Request for Qualifications (RFQ) to identify potential operators of the International Ag Shipping Terminal at Ports of Indiana-Burns Harbor. The 7m-bushel terminal has transload capabilities for ocean ships, lake vessels, river barges, unit trains and trucks. This is the first time the Lake Michigan terminal has been available for a new operator in 44 years.

The facility has been operated by Cargill since 1979, but the company announced it is changing its business model in the region and will relinquish the facility to the port as of June 1.

Ports of Indiana originally financed the construction of Cargill's facility in 1979 and, through the years, the terminal has exported more than 500m bushels of corn and soybeans to world markets. The terminal can handle ocean vessels transitting the Great Lakes, 305 metre lake vessels, year-round barge traffic via the inland river system and unit trains from nearly all Class I railroads.

"It's the end of an era and a new beginning for one of the largest international ag terminals on the Great Lakes," says Ryan McCoy, port director for Ports of Indiana-Burns Harbor.

"It's bittersweet for me because I worked at that facility for 10 years and Cargill has been a great partner for the Ports of Indiana and the local community. However, this change also creates a unique opportunity to reimagine the facility and expand its capabilities going forward."

The grain elevator terminal includes 7.2m bushels of storage facilities and high-speed loading capacities that can load 90,000 bushels per hour into an ocean vessel and unload 30,000 bushels per hour from a unit train, which are industry leading capacities even today. Ports of Indiana will assume possession of the facility and is currently looking for a long-term partner to help grow shipments at the port.

The RFQ seeks qualifications from companies interested in operating the ag terminal. Responses were due in April. Ports of Indiana will issue a formal Request for Proposals in May to all qualified companies.

"We're excited about the next chapter for this terminal," McCoy continues. "We have received multiple inquiries from companies interested in expanding the facility. This is a unique deep-water terminal with tremendous capabilities for shipping grain, DDGs and many bulk cargoes to and from ocean vessels at the heartland of America. It's not every day that this type of facility becomes available."

Burns Harbor port opened in 1970, is home to more than 30 companies, and handles approximately 3m tons of cargo per year. Currently, the port is developing a \$32m facilities expansion funded by two federal grants that

includes construction of two rail yards, new bulk and general cargo terminals, a bulk warehouse, and a truck marshalling yard.

The port complex contributes \$5.2bn per year to the Indiana economy and supports more than 30,000 jobs. Ports of Indiana handled 11.9m tons of cargo in 2022, resulting in a 6% increase from 2021 and 42% more than 2020.

The year-end totals were announced at the Ports of Indiana's regularly scheduled first quarter Commission Meeting held recently in Jeffersonville. The Commission also approved more than \$20m in expansion and maintenance projects.

During 2022, the Burns Harbor and Jeffersonville ports both set new records for total annual shipments, and the overall cargo volume was the fourth highest in Ports of Indiana's 61-year history.

"We're excited to see the continued growth at our ports and this success is directly attributable to the world-class companies we partner with every day," says Ports of Indiana CEO Jody Peacock. "Our industry is still recovering from the economic and supply chain challenges, but the continued growth in shipments is a very good sign, and the new business development opportunities we're seeing indicate more growth is ahead.

"Our commissioners have shown tremendous vision and commitment to supporting growth of Indiana's economy by approving more than \$20m in projects that will immediately expand Ports of Indiana's capabilities and help our customers grow."

Major projects include new construction of three shipping berths and a bulk warehouse at Burns Harbor, a new barge shuttle storage facility at Jeffersonville, as well as a new dock winch system, truck scale and major maintenance projects at Mount Vernon.

In 2022, Ports of Indiana-Burns Harbor handled 3.45m tons on Lake Michigan, up 2% compared with 2021 and 52% more than 2020. This is the second-consecutive year the port reached its highest annual shipment total since it began operation in 1970.

# VIGAN: INNOVATION IS A MAIN DRIVER

## COMPANY NEWS

**Turbo-blowers are the lungs of our machines. They create suction by generating an impressive under-pressure. Their operational principles are the same as those employed in turbo-jet engines or turbines for power plants. Thanks to the turbo-blowers, our machines can transfer cargo without using excessive moving parts as in mechanical systems. The product is handled gently from the nozzle to the airlock.**

### SPECIFIC FEATURES

Turbo blowers are designed to provide powerful and high air speed and, at the same time, efficient and low-noise operation. They are specifically designed to run at variable speeds up to 4,800rpm, which allows them to generate a depressurised flow that sucks the product into the machine. This high-speed operation is made possible thanks to the use of motors and turbo-blowers that are statically and dynamically balanced, ensuring smooth and stable operation.

One of the key benefits of turbo blowers is their efficiency. They can generate 0.5 bars of vacuum, optimising energy efficiency to 0.7 kWh/ton in grain with a density of 0.75. This efficiency is further enhanced using

variable speed regulation, which adjusts the speed of the machine based on the actual product flow. Significant energy savings compared to constant speed systems are the direct consequence.



Another consequence of the use of inverters are to be noticed at the acoustic level. Thanks to the use of power adaptation in operation and multi-stage design, noise emissions are greatly reduced compared with other technologies such as root pumps. Additionally, VIGAN has developed custom noise cancelling solutions to reach low-noise emission values, which is especially useful in urban environments.

Finally, turbo blowers are also known for their dust-free operation. This is achieved by the complete pneumatic transfer in the machine being made through vacuum, which makes the handling of the product, by nature, dust-free. Additionally, a large filter protecting the turbo-blowers, guarantees dust-free exhausts, further contributing to the cleanliness of the operation.

## FLEXIBLE UNIVERSAL JOINT

Turbo blowers are known for their versatility and flexibility, and one of the key features that contributes to this is the use of a flexible universal joint. This joint is designed to provide easy access for servicing, a major advantage for maintenance and repair work.

One of the benefits of the flexible universal joint is the absence of loads and vibrations on the motor shaft. This guarantees a long bearing lifetime. The machine can operate for longer periods of time without the need for frequent maintenance or repairs. Additionally, the standard and efficient motor cooling system also helps to prolong the life expectation of the machine.

Moreover, the motor used in these machines has a standard design that can be serviced by any motor care company. This allows for greater flexibility in terms of maintenance and repairs as it is not limited to a specific company or service provider. This also makes it easier to source replacement parts if needed.

Overall, the flexible universal joint is an important feature of turbo blowers that contributes to the machines' versatility, efficiency and ease of maintenance. This feature helps to make the turbo blower a reliable and durable option for a wide range of industrial applications.

## INNOVATION: INLINE MULTI-STAGE TURBO-BLOWERS

Innovation is a key driving force for VIGAN. Fifteen years ago, the company was a pioneer in developing inline multi-stage turbo-blowers driven by high-power frequency drives. Even after several copy attempts, no other real multi-stage turbo-blower design exists as of today on the ship unloading market.

The design of VIGAN's multi-stage turbo-blowers is directly inspired by aircraft engine and gas turbine industries, utilising real multi-stage technology. This means that every compression stage is directly followed by the next one, eliminating the need for additional piping that can induce pressure losses and reduce turbine efficiency.

This technology is particularly useful in applications where power consumption is important, as it allows for high efficiency to be achieved. VIGAN's direct drive technology, individual wheel testing and balancing, and efficient sealing solutions, all contribute to this efficiency.

As a result, VIGAN's multi-stage direct drive turbo-blowers are the most high performance ones available in the ship unloading market. They have high vacuum and airflow parameters in a compact assembly, with no additional piping between turbo stages to reduce pressure losses. Additionally, when more than one turbo-group is used, they are placed in parallel to increase efficiency and capacity. Finally, a fine-tuned torque regulation is used to continuously adapt speed and power consumption for energy savings.



VIGAN's multi-stage direct drive turbo-blowers are the most high performance ones available in the ship unloading market

## CONCLUSION

VIGAN's multi-stage direct drive turbo-blowers are the most efficient ones available on the ship unloader market. This is the result of their high vacuum and airflow performances in a compact assembly without additional piping between the turbo stages to reduce pressure losses.

When more than one turbo-group is used, they are placed in parallel to increase efficiency and capacity. Finally, a fine-tuned torque regulation is used to continuously adapt speed and power consumption for energy savings.

For more information, visit [vigan.com](http://vigan.com)



# RUSSIAN REVOLUTION

Given the recent pressure on countries and companies to reduce their dependence on fuel supplies from Russia, the search is on to find alternative sources of supply for coal. A resurgence of coal as a fuel source in the absence of alternatives has taken place



**E**urope's ban on Russian coal is seeing cargo travel much longer distances, nearly doubling shipping demand and boosting vessel sizes. Capesize freight rates are set for a period of upside volatility as the fallout from the war in Ukraine continues to spread across the energy markets, according to a new report.

In its latest quarterly dry bulk market outlook, Maritime Strategies International (MSI) points to the re-routing of Russian exports to new destinations as a result of the EU ban on imports. At the same time, imports to Europe are also travelling longer distances to reach the bloc from other sources.

With Russian exports subject to the European Union's import ban, Russia has re-routed those flows to other destinations, in particular China, India and Turkey, a structural change to major coal trade that MSI believes will persist over its forecast horizon.

This is having a significant impact on the average distances over which Russian coal is being transported, with the average laden distance for Russian coal cargoes increasing from 2,000-2,500km in 2018-20 to around 4,000km now. Away from any impact on Russian coal volumes, this suggests a near doubling of the shipping capacity required by the Russian coal trade.

While this is significant by itself, the impact on the freight markets is likely to be further amplified by the shift of that trade towards capesize vessels. While only approximately 10% of the Russian coal trade was previously served by the capesize market, that proportion is now closer to 25%. Given the typical seasonality in the coal trade, and the potential for short-term geopolitical shifts in the Russian coal trade in particular, these factors are likely to contribute to an increase in the volatility of Capesize utilisation rates.

With Europe at the epicentre of a global energy crisis since the withdrawal of Russian gas supplies, elevated demand for coal in Europe will persist for some time yet. MSI maintains an optimistic outlook for coal trade this year, forecasting growth of 2.7% year on year. Its expectations of a further increase in

volumes is underpinned by persistent strong import incentives.

"The war in Ukraine is continuing to have disruptive effects on the dry bulk commodities markets and therefore dry bulk shipping, in this case the larger ship classes will be the ones to benefit," says Plamen Natzkoff, associate director of dry bulk commodities at MSI. "There are of course risks to this forecast, but the shipping demand trend is likely to be only re-enforced by Europe's increased reliance on coal imports which it must secure from longer-distance sources."

## CHINA'S ZERO TARIFFS

According to a recent report by Reuters, China is expected to continue some preferential tax policies and operate zero tariffs on coal imports until the end of 2023.

China cut tariffs on coal to zero in April 2022 because of concerns over domestic energy security and supply disruptions.

"The country's coal imports in the first two months of this year surged 71% from the same period last year, as utilities stepped up purchases of cheap thermal coal from Indonesia while arrivals from Mongolia also picked up after the easing of covid-19 restrictions," Reuters said in its report.

"China will also cut some taxes for small companies and individual businesses and extend such favourable policy until the end of 2024, state media reported. Other preferential tax policies include a reduction in tax related to research and development and a halving of logistics companies' tax on warehouse land for bulk commodity storage in urban areas."

The report also revealed that China's average daily coal imports from Russia rose in the first two months of 2023 compared with December, boosted by strong restocking demand as Beijing lifted its zero-covid regime, but logistics bottlenecks still capped shipments.

Arrivals of Russian coal reached 14.8m tonnes, or 250,892 tonnes per day, during January and February, data from the General Administration of Customs showed recently, making Russia China's second-biggest coal supplier.

That compares with 222,346 tonnes per day in December and 110,470 tonnes per day over the first two months in 2022.

China sharply increased coal imports from Russia after its invasion of Ukraine as Western countries stopped trading with Russia, which pushed down Russian coal prices and attracted buyers that did not implement sanctions.

However, transport infrastructure limitations in Russia have caused problems to supply lines serving China in recent months and this situation is expected to continue, the report suggests.

## US WASTEWATER PLANS

The US Biden-Harris Administration announced in March that it is proposing to strengthen wastewater discharge standards that apply to coal-fired power plants.

The US Environmental Protection Agency (EPA) proposal follows the latest science and applies EPA's longstanding authority under the Clean Water Act to reduce discharges of toxic metals and other pollutants from these power plants into lakes, streams, and other waterbodies. The proposed rule would help protect US water resources that support safe drinking water, agriculture, and healthy communities while providing greater certainty for industry.

"Ensuring the health and safety of all people is EPA's top priority, and this proposed rule represents an ambitious step toward protecting communities from harmful pollution while providing greater certainty for industry," says EPA administrator Michael Regan. "EPA's proposed science-based limits will reduce water contamination from coal-fired power plants and help deliver clean air, clean water, and healthy land for all."

EPA's proposed rule would establish more stringent discharge standards for three types of wastewater generated at coal fired power plants: flue gas desulphurisation wastewater, bottom ash transport water, and combustion residual leachate. The proposed rule also addresses wastewater produced by coal-fired power plants that is stored in surface impoundments (for example,

ash ponds). The proposal would define these “legacy” wastewaters and seeks comment on whether to develop more stringent discharge standards for these wastewaters.

EPA estimates that the proposed rule would reduce pollutants discharged through wastewater from coal-fired power plants by approximately 584m pounds per year. This means that communities across the country would benefit from cleaner and more resilient water resources, especially low-income communities and communities of colour that are disproportionately impacted by pollution from coal-fired power plants.

## INDIAN COAL IMPORTS DROP

Coal imports to India have fallen 25% in the past three years as India seeks to increase domestic production and reduce dependence on imports.

The fall has occurred in spite of global geopolitical turmoil, which has put a strain on supply chains and has resulted in a reliance on more traditional forms of fuel sources.

The government imported 248.54m tonnes of coal in 2019-20, which fell by 25% to 186.06m tonnes in fiscal year 2022-23, according to the Indian Coal Ministry.

## WIND POWER FOR COAL SHIP

The Seawing automated kite system is to be installed on *Corona Citrus*, a coal carrier for K Line and Electric Power Development (J-POWER).

The 88,000 vessel is equipped with a ballast water treatment system. The coal carrier also comes with a SOx scrubber, which eliminates sulphur oxides in exhaust gas from its engine, so as to comply with the regulations on SOx emissions that came into effect globally in January 2020.

The newly installed Seawing is expected to reduce CO<sub>2</sub> emissions from the ship by at least 20%. Thus, it is one of K Line’s initiatives to achieve its greenhouse gas reduction target.

The Seawing system combines expertise in aviation and maritime technologies. The kite can be deployed and stored automatically with simple

switching operations. This system collects and analyses weather data and marine data on a real-time basis and uses the information to optimise its performance and secure maximum safety.

## A FLEXIBLE APPROACH

Bruks Siwertell has completed the commissioning of two large-scale Siwertell ST 790-D-type ship unloaders for a newly developed ultra-supercritical power station in southern China, ensuring clean and efficient coal handling for their new owners.

“The covid-19 pandemic presented a number of challenges for the commissioning process as it was impossible to send personnel from Sweden,” explains Björn Ohlsson, contract manager, Bruks Siwertell. “We had to get creative, developing a unique set-up that saw our local personnel carry out the commissioning and performance tests with remote support from Sweden.

“The whole process required us to be very flexible, not only with our approach, but also with our working hours. The

result is two ship unloaders that are meeting their new owner’s expectations.”

The new unloaders secure the delivery of fuel to a two-unit 1,000MW power plant development.

Siwertell screw-type ship unloaders are designed to handle coal and other dry bulk materials in the most environment-friendly way possible, with totally enclosed conveying lines from start to finish, providing an operation free from spillage, and reducing dust emissions to a minimum.

“The proven performance of Siwertell unloaders was an important element in them being selected for this new development,” notes Ohlsson. “Our technology is also much lower in weight than any equivalent capacity equipment, which minimised the load on the jetty, delivering significant cost savings in jetty construction.”

In addition to their low weight, the Siwertell ship unloaders, deliver through-ship capacities, which minimise berth occupancy. These new units are rail-mounted and offer a continuous rated coal handling capacity of 1,800t/h, with a peak capacity of 2,000t/h, discharging vessels of up to 100,000dwt.



SIWERTELL ST 790-D-TYPE SHIP UNLOADERS FOR A NEWLY DEVELOPED ULTRA-SUPERCritical POWER STATION IN SOUTHERN CHINA © BRUKS SIWERTELL

# BEUMER: RELIABLE TRANSPORT COMES IN A U-SHAPE

## COMPANY NEWS

The demand for bulk goods such as grain or fertiliser is increasing worldwide. And even the demand for coal is increasing, at least in the short term, but probably decreasing in the long term. This means that bulk terminals at ports are in a constant state of flux. In order to handle these volumes efficiently, port terminals must be able to expand again and again. This means that operators are faced with the challenge of integrating new storage areas, which are not always located in the immediate vicinity of the port. Trucks are often used for transport. They can be used flexibly depending on demand. However, the environmental impact and the operating costs for maintenance and fuel, for example, are significant. The more material that needs to be transported, the more trips are required.

An ecological and environmentally friendly alternative to truck transport is represented by the belt conveying systems. Owners can automate processes and thus relieve personnel from manual work. This solution also reduces the consumption of energy. A further advantage is that a belt conveyor enables the transport of very different materials to and from the port. At this regard, BEUMER Group offers different solutions depending on the application. The troughed belt conveyors allow high



mass flows even in case of heavy and robust materials. Their open design makes them suitable for coarse materials and very large volumes. The pipe conveyors on the contrary present other specific advantages. The idlers form the belt to a closed tube protecting the material transported against external influences and the environment from emissions such as material loss, dust or odours. Partition plates with hexagonal cuts and idlers in staggered arrangement keep the tube shape closed. The pipe conveyors allow the implementation of narrower curve radii and larger angles of inclination than open troughed belt conveyors.

However, requirements are continuously increasing: On the one hand, the quantities of bulk materials are growing and on the other hand, for environmental reasons, they have to reach their destination with little dust and noise. In addition, there is often a complex routing. BEUMER Group

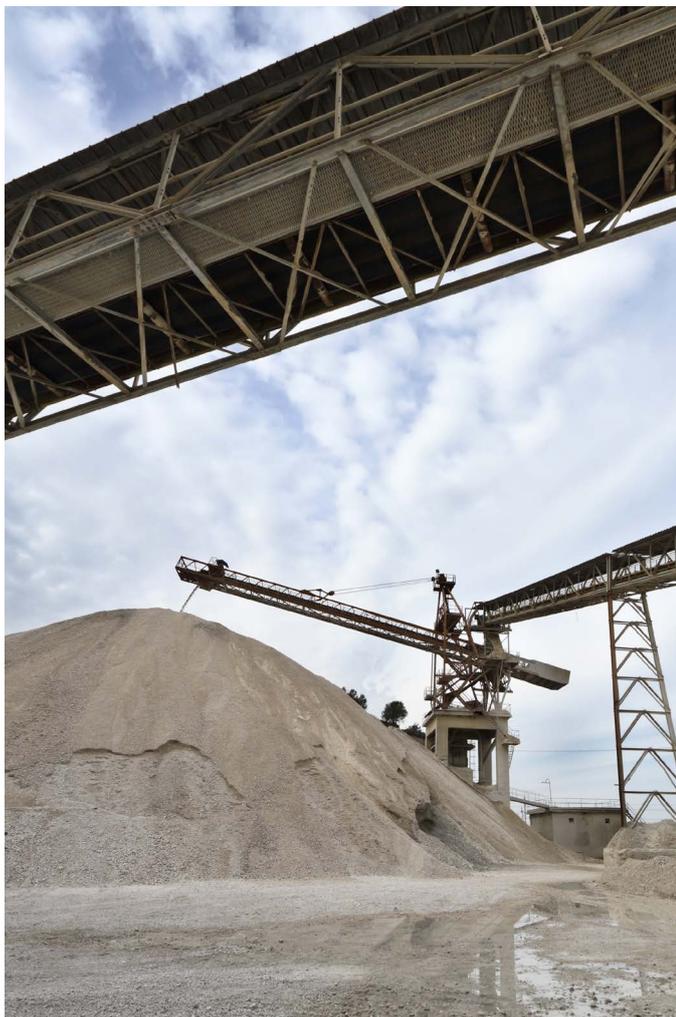
has developed the U-shape conveyor for this purpose. In this solution, a special idler configuration brings the belt in a u-shape. Thus, the bulk material reaches the discharge station. An idler configuration similar to that for the troughed belt conveyor is used for opening the belt. Unique feature of this solution: It brings together the advantages of open troughed belt conveyors and closed pipe conveyors. The material conveyed is protected against external influences such as wind, rain or snow and the environment against possible

material loss and dust. This conveying solution is suitable for coarse but also for very fine material. BEUMER Group is thus expanding the options for offering the best solution for bulk material transport, depending on the project.

**For more information, visit:**  
**[beumer.com](http://beumer.com)**

# JOINED-UP THINKING

A range of initiatives and joint ventures are seeing vital work being carried out to reduce carbon emissions in the cement industry



**A** research project launched by Thyssenkrupp, Holcim and TU Berlin last year examined CO<sub>2</sub> reduction for the cement industry using a new amine scrubbing process to aid the carbon capture process. One of the goals of the project was to reduce emissions at existing cement plants. A key driver was the raw materials used in the cement production process resulted in CO<sub>2</sub> being released into the atmosphere. Thyssenkrupp, Holcim and the Technische Universität Berlin teamed up not only to reduce emissions, but also to explore how the captured CO<sub>2</sub> could be used for other applications.

Dr Ralph Kleinschmidt, head of technology, innovation and sustainability at Thyssenkrupp said at the time: "Amine scrubbing is already commonly used to recover CO<sub>2</sub> from process gases or exhaust gases. Now, we are developing the technology further and optimising it for the cement industry. Additional applications for capturing CO<sub>2</sub> direct at source, such as in waste incineration plants, are also possible."

Arne Stecher, head of decarbonisation at Holcim Germany explained: "Carbon capture will be a must for cement plants in the near future. That is why we are testing different processes to find the best carbon capture technology. Carbon capture by means of amine scrubbing is a promising solution. I am pleased we can test this innovative process in the cement industry."

Dr-Ing Jens-Uwe Repke, chair of process dynamics and operations group at TU Berlin, agreed: "Developing innovative carbon-capture technology for gas treating and improving the efficiency, environmental compatibility and sustainability of existing carbon-capture processes is an urgent and crucial task that makes a direct contribution to climate protection. These goals can only be achieved if industry co-operates closely with research facilities like universities."

## JOINT INITIATIVE

Other recent projects to reduce carbon capture include one by FLSmidth and Mannok Cement to control emissions using the Fuelflex Pyrolyzer, an initiative of FLSmidth's research facility in Dania.

This game-changing technology has enabled Mannok to control nitrous oxide emissions without needing to use ammonia water and increase alternative fuels utilisation.

This puts the plant firmly on the path to achieve its 2030 vision target of reducing CO<sub>2</sub> emissions by 33% compared with 2020 levels.

FLSmidth project manager Lars Skaarup Jensen took the technology to Mannok as a co-development project.

"The solutions to ensure a sustainable tomorrow require genuine collaboration today. Mannok Cement and FLSmidth have prospered from a decades long relationship of trust, mutual respect and shared goals – critical ingredients for a complex co-development project," explains Jensen.

"Because both companies had the perseverance to overcome every single detail, we have now introduced gamechanging technology that will make a significant impact on Mannok's plant, as well as cement producers all around the world."

Mannok was already using solid recovered fuel produced from waste diverted from landfill, but was limited as to how much they could burn due to build-up in the process.

The Fuelflex Pyrolyzer effectively reorganises the combustion process to create a more efficient method of alternative fuels utilisation. Recovered fuels are introduced with the preheated raw meal – effectively using hot meal as the gasification medium. The fuel is therefore pyrolyzed, not burned.

This creates a more stable kiln process; it enables greater use of moist solid recovered fuel (SRF) – which is what Mannok is dealing with – and it completely eliminates the need for ammonia to mitigate nitrous oxides, which represents both a cost and safety benefit.

## CLOSING THE LOOP

A number of industry players are also co-operating in a three-year research project that is aiming to demonstrate 100% recyclability of demolished concrete into new concrete.

Funded by the Danish Environmental Protection Agency, the project brings together partners from a wide range of disciplines, including cement and concrete production, waste treatment, concrete testing, and equipment suppliers.

Kicking off at the beginning of this year, the project aims to close the loop for concrete by recycling 100% of demolished concrete into new concrete.

This will require technologies that gently but efficiently separate the coarse aggregate fraction from the fine sand and cement fractions, as well as solutions to process the fines into high-quality sand and cement fractions.

The project will also explore technologies to refine the cement fraction, which poses the biggest challenge in terms of recycling. Such an ambition requires diverse perspectives and collaboration across the value chain.

## SAFETY AT SEA

Improper handling of bulk cargo can compromise vessel stability and the structural integrity of the vessel, risking the lives of the crew aboard. Understanding the unique properties of a given cargo, and how to handle it correctly, is critical to ensuring the safety of crew, vessel, and the marine environment.

Through a new partnership, Ocean Technologies Group (OTG) customers will be able to utilise Series One of the KeelX *Safe Handling and Transportation of Dry Bulk Cargoes* e-learning through the award-winning Ocean Learning Platform (OLP).

These titles will provide shipowners with a valuable resource to bolster their crews' existing knowledge while aboard or ashore, as part of ongoing training or even as part of pre-boarding processes, thereby helping reduce

risks to safety and to mitigate against possible claims.

Utilising case studies as well as real-life scenarios, the KeelX titles provide learners with an in-depth understanding of how to handle and transport specialist dry bulk cargoes safely, equipping them with the tools they need to analyse unprecedented situations, explore multiple operational scenarios, and understand the best possible courses of action.

The first modules to be added to the OLP cover the safe handling and transportation of coal, cement and soybeans.

The series will soon be further enhanced with the addition of two new titles from KeelX that focus on nickel ore and steel coils.

Evros Damianou, KeelX education program lead, says: "The quality of our product is our priority. Teaming up with OTG guarantees that our product will be delivered to seafarers, globally, online, and offline, easily through the OLP.

"We strive to develop our e-courses every day, ensuring our material is constantly up-to-date with new material, including relevant industry developments, new real-case scenarios, and additional training information.

"The Series One titles will provide learners with the relevant knowledge to mitigate and avoid possible claims, incidents, and off-hire, but primarily to safeguard human life on board."

Henning Davies, global commercial director for OTG, adds: "KeelX invests heavily in its research, putting significant effort into data analysis, international codes, regulations, treaties, and operational incidents.

"*The Safe Handling and Transportation of Dry Bulk Cargoes* titles are a perfect example of how KeelX use the lessons learned from real-world incidents to create high-quality e-learning resources.

"Offering these new titles through the OLP provides our customers with the resources to improve the safety of operations and evidence this commitment to their customers, partners, and stakeholders."

# STREAMLINING THE SUPPLY CHAIN

Some of the world's largest shipping companies have committed to using electronic bills of lading in ongoing moves to digitalise trade



**BIMCO has launched the “25 by 25 pledge”, a commitment by some of the world’s biggest shippers in the bulk sector to target moving 25% of their annual seaborne trade volume for at least one commodity using electronic bills of lading by 2025. The pledge is part of an ongoing effort to accelerate trade digitalisation and streamline the supply chain process in the bulk sector.**

The use of electronic bills of lading (eBLs) increases efficiency, reduces costs and improves the overall transparency and security of trade. In contrast, paper bills of lading are inefficient, slow down trade and are vulnerable to fraud and human error. The use of paper bills therefore poses unnecessary legal and commercial risks such as relying on letters of indemnity or getting lost in transit.

“The wider adoption of electronic bills of lading is an important step in the shipping industry’s digital transformation,” says Grant Hunter, director of standards, innovation and research at BIMCO.

“We are delighted that some major players in the dry bulk sector have already backed this community initiative to reach 25% usage across the entire bulk sector. These mining companies have made good headway with adopting eBLs over the past years, mainly with iron ore, but much more can be done.”

Hui Ling Chan, VP, order-to-cash global business services at BHP, one of the world’s largest mining companies, says: “Identifying and driving innovative solutions is key to the way BHP operates, and we are committed to supporting the digital transformation in the shipping industry together with our supply chain partners.

“We are pleased to be a signatory to the 25 by 25 pledge and hope others will join with us to support the acceleration of trade digitalisation and streamlining of the supply chain process.”

Laure Baratgin, head of commercial operations at Rio Tinto, says: “As the largest dry bulk shipper in the world, one of our ambitions has been to

continuously improve the experience of doing business with Rio Tinto for our customers and supply chain through innovative end-to-end digital solutions. We fully support the 25 by 25 pledge on the use of electronic bills of lading, as a key step in enabling faster, more secure and traceable trade flows, and bringing the industry closer to a full digital trade future.”



Electronic bills of lading increase efficiency, reduce costs and will reduce reliance on letters of indemnity – which is a benefit to all stakeholders

Erick Tavares, sales administration manager at leading global iron ore supplier Vale, says: “Vale takes great pride in being among the first to sign the 25 by 25 pledge. Innovation and digitalisation are levers for us to reach our ambitions, and over the past decade, we have worked tirelessly to digitise our operations both internally and externally, always with a focus on enhancing the customer experience.

“By signing the pledge, we are reaffirming our dedication to advancing our digitalisation process and inviting our customers and partners to join us on this exciting journey that benefits the entire supply chain.”

“At Anglo American, we are committed to supporting initiatives that help to drive innovation and efficiency in our products’ supply chains,” says Timo Smit, executive head of marketing at Anglo American. “Digitisation is a key enabler for such a drive and the use of electronic bills of lading is a natural part of this journey. We are proud to be a signatory to the 25 by 25 pledge.”

“As a shipowner and operator, we are fully supportive of the 25 by 25 pledge and accelerating the shift towards electronic bills of lading,” says Julius Posselt, head of operations-claims department at Oldendorff Carriers. “We will be encouraging our counterparts to adopt eBLs and join the pledge as it will ultimately benefit everyone in the supply chain.”

Christos Anagnostou, Star Bulk’s operations and insurance director, says: “Star Bulk is very supportive of this BIMCO initiative to promote eBLs, which is also in line with our company’s focus on digital transformation.”

Owners and operators also have an important role to play in the switch to electronic bills of lading, as they are key stakeholders in this process, and BIMCO invites their support for the initiative.

Jinsong Gu, chairman of COSCO Shipping Bulk Co and member of BIMCO’s board of directors, says: “We believe that BIMCO’s campaign to achieve 25% eBLs in the bulk sector by 2025 is an important step in accelerating shipping’s digital transformation. Electronic bills of lading increase efficiency, reduce costs and will reduce reliance on letters of indemnity – which is a benefit to all stakeholders.”

## LARGE BULKERS IN DEMAND

According to a weekly report by broker Allied Shipbroking, there has been a recent demand for larger size bulkers with a number of orders placed for ultramax tonnage in the first few months of this year.

According to the report, some 70% of deliveries for dry bulk vessels this year and next year will be for ultramaxs, and about 20% for handymax size ships.

# ROOM FOR MANOUVRE

Enclosed spaces pose a major hazard to seafarers and port workers, but a raft of new regulations aim to improve safety



**P**rocedures when dealing with the issue of operation in and enclosed space environment has always been a matter for considerable concern in the maritime industry. The dangers of encountering adverse conditions, notably oxygen depletion, in enclosed spaces continue to be a focus for port workers and operators, as well as seafarers, and any situation where ventilation may be a problem. Fire is also a major issue.

Draft amendments on ventilation requirements for totally enclosed lifeboats were finalised at the International Maritime Organization sub-committee on ship systems and equipment (SSE 10), which met recently.

The sub-committee finalised amendments addressing the ventilation of survival craft for totally enclosed lifeboats, including related amendments to the revised recommendation on testing of life-saving appliances (resolution MSC.81(70)).

SSE 10 will continue to discuss any compelling need on such ventilation requirements for partially enclosed lifeboats and liferafts.

The aim is to ensure a habitable environment is maintained in survival craft at all times to enhance survivability.

The draft amendments will apply to totally enclosed lifeboats installed on or after 1 January 2029, so as to allow ample time for administrations and manufacturers to implement the new ventilation requirements.

The sub-committee also finalised a number of draft amendments to the LSA Code and associated instruments, including resolution MSC.81(70), as appropriate, concerning:

- » the lowering speed of survival craft and rescue boats for cargo ships
- » single fall and hook systems with on-load release capability
- » thermal performance of immersion suits on the low-temperature tolerance time threshold
- » in-water performance of Safety of Life at Sea Convention (SOLAS) lifejackets.

The Maritime Safety Committee will be invited to approve the draft amendments at its 107th session, for subsequent adoption.

The sub-committee also completed its review of SOLAS chapter II-2 and associated codes, including the Fire Safety Systems (FSS) Code, to minimise the incidence and consequences of fires on board ro-ro passenger ships. The draft amendments agreed by the sub-committee will be forwarded to MSC 107, for approval and subsequent adoption.

The draft SOLAS amendments will mainly apply to passenger ships constructed on or after 1 January 2026 and include requirements for:

- » a fixed fire detection and fire alarm system to be provided for the area on the weather deck intended for the carriage of vehicles
- » an effective video monitoring system shall be arranged in vehicle, special category and ro-ro spaces for continuous monitoring of these spaces
- » structural fire protection in passenger ships carrying more than 36 passengers, including fire insulation

of boundary bulkheads and decks of special category and ro-ro spaces

» a fixed water-based fire-extinguishing system based on monitor(s) to be installed in order to cover weather decks intended for the carriage of vehicles.



## The dangers of encountering adverse conditions in enclosed spaces continue to be a focus for port workers

The draft amendments to the FSS Code include specifications of fixed water-based fire-extinguishing on ro-ro passenger ships having weather decks intended for the carriage of vehicles as required by SOLAS chapter II-2.

Draft amendments to the revised guidelines for the design and approval of fixed water-based fire-fighting systems for ro-ro spaces and special category spaces (MSC.1/Circ.1430/Rev.2) were also agreed.

The sub-committee finalised draft amendments to regulation 7 of SOLAS chapter II-2 (Detection and alarm) and associated MSC.1/Circ.1456, addressing fire protection of control stations and cargo control rooms on cargo ships to enhance fire safety in such locations. The 2023 diving code draft was also finalised as well as safe operation for onshore power supply interim guidelines.

## ENCLOSED SPACE ENTRY

The UK government's guidance provides plenty of advice on how to identify an enclosed space, the risks of entry and information on how to reduce the risk to life.

As it recently pointed out in its guidance, new regulations on enclosed spaces are in effect. These came into force in May 2022 for vessels falling under the Safety of Life at Sea Convention (SOLAS), and May 2023 for other vessels.

Details of these regulations can be found in MGN 659 (M+F) amendment 1 entry into enclosed spaces. Amendment 1 provides general exemptions to ("the 2022 Regulations"). See 10.1 of the notice and annex's D, E and F, outlining the requirements of each exemption.

General Exemptions are available for vessels under 500 gross tonnes on domestic voyages from the UK, from regulation 8 (drills) and regulation 9 (testing equipment), subject to the conditions that are set out in regulation 10 and the applicable general exemption.

See [tinyurl.com/BTI-GovGuidance](https://tinyurl.com/BTI-GovGuidance) for more information

## ZERO HARM

RightShip has a vision for a maritime industry that causes zero harm and realises its commitment passionate to see real safety improvements in the maritime industry.

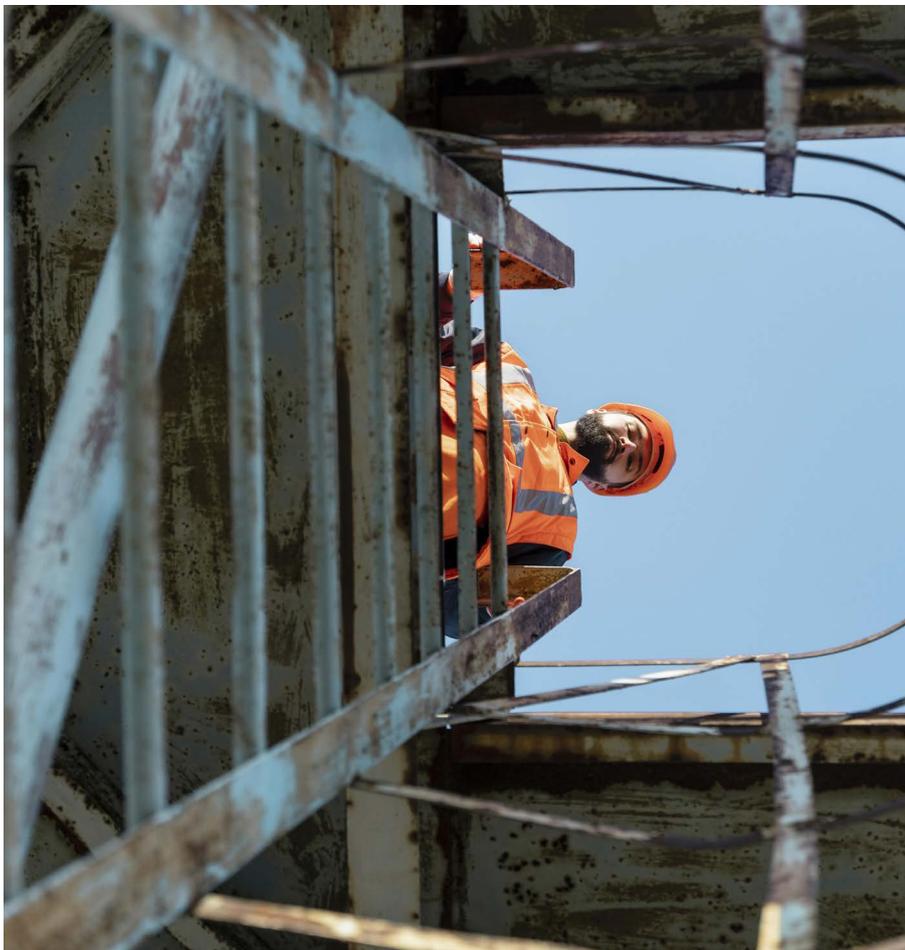
It uses data to inform, support and encourage ship managers to make proactive choices about crew safety. In an informative paper, head of operations, Americas, Oussama Darif takes readers through enclosed space entry and answers questions about why the topic needs to be discussed, how he feels about the issue and answers questions on whether masters and crew understand the regulations, and what other factors are in play, including commercial pressures.

As co-author of the *Handy Guide to Dry Bulk Operations*, published by the Nautical Institute, and *The Dry Bulk Management Standard* at RightShip, Darif's recent project, the *Enclosed Space Entry Insights Paper* continues the RightShip series on safety and leading practices.

Find out more at [tinyurl.com/BTI-RightShipSafety](https://tinyurl.com/BTI-RightShipSafety)

# SAFETY IS THE KEY

Safety and security are vital elements of the maritime industry and there have been a number of initiatives in recent months to ensure that progress continues to be made in this respect – these are topics on which the industry cannot afford to be complacent



**A** memorandum of understanding (MoU) has been signed by five organisations with shared visions for the safety and security of global trade and shared aims to take advantage of unified information and data sources to bring greater awareness and understanding of issues, with the goal of producing preventative output.

The five organisations include: the Cargo Incident Notification System (CINS), the Confidential Human Factors Incident Reporting Programme (CHIRP), the Container Owners Association (COA), the International Cargo Handling Coordination Association (ICHCA) and Ship Message Design Group (SMDG)

The plan is to create a framework for co-operation that enables each group to benefit from each other's activities in areas of joint interest. These will, in the immediate future, concentrate on improved safety during the global transport and handling of goods that have the potential to cause injury to the workforce and/or damage to the environment and the goods themselves.

John Beckett, chair of ICHCA comments: "This unique grouping of

industry leaders has the potential to co-ordinate data, research and best practices across the broad spectrum of the international movement of cargo. A key goal is to create an awareness throughout the freight industry, amongst operators, regulators and policy makers as to practical and effective measures to improve safety."

A fundamental part of the group's output will be publications. According to deputy chairman of CINS Dirk Van de Velde: "As an example of where immediate attention is required, container ship fires are high on the list. The combined knowledge, experience and database resource of the signatories to this MoU, managed in a co-ordinated manner, have massive potential to leverage change in safety processes."

In search of practical changes that will alleviate such dangers, the MoU calls for coordinated efforts both on regional and international issues of common concern and engagement with relevant regulatory bodies including the International Maritime Organization and other appropriate United Nations agencies.

Other stated aims include working together to initiate innovative global studies that can assist with the advance of these organisations on behalf of their members and associates. There will also be sharing of research findings and publications to strengthen information exchange, while avoiding duplication of effort by pooling resources.

"CHIRP Maritime is delighted to be part of the MoU," explains CHIRP's deputy director David Watkins. "CHIRP Maritime will work with our partners to collect information on operational cargo-related accidents and incidents and share learning with the wider maritime community to promote best practices in the supply chain and reduce the number of cargo incidents on board ships and terminals"

## BATTERY TRANSPORT

The *Lithium-ion Batteries in Containers Guidelines* seek to prevent the increasing risks that the transport of lithium-ion batteries by sea creates, providing suggestions for identifying such risks and

thereby helping to ensure a safer supply chain in the future. Together with its partners, the Cargo Incident Notification System Network (CINS) has compiled a comprehensive publication covering the properties of these batteries and their potential to explode, initiate fires and emit toxic gases.

Extensive measures to safely transport what is an exponentially increasing volume of lithium-ion batteries, in their various states or charge and when also contained in electronic devices are fully examined including, classification and regulation, container packing, landside storage, stowage onboard ships, incident detection and fire suppression, and loss prevention and risk mitigation.

"We strongly urge all stakeholders in the production, supply, transport, handling and sale of lithium-ion batteries whether as individual components or integrated into an electronic device, vehicle or other product to recognise their responsibilities in maximising safety when in transit," comments Dirk Van de Velde, deputy chair of CINS and a board member of the association of cargo handlers, ICHCA. "Our guidelines will create greater awareness of the possibilities of the damaging and life-threatening incidents, which have already occurred, and instil more urgent motivation to act before more catastrophic disasters result."

Intended as the first of an on-going series of publications to be updated as circumstances require this first, *Lithium-ion Batteries in Containers Guidelines (101.A)* provides a general overview, and will be followed by three further documents – regulatory compliance check-lists, risk assessment and emergency response, and training and educational awareness. Stakeholders in the supply chain are encouraged to implement the advice according to their specific operations and requirements but to always keep safety of life as their primary consideration.

"As our experience of transporting lithium-ion batteries widens and the technology surrounding their chemical composition, production and application rapidly evolves, risk controls and loss

prevention measures need to keep pace. The work encapsulated in these guidelines will, of necessity, continue and be undertaken in collaboration with all relevant stakeholders to increase our knowledge and understanding of the risks posed by carriage of lithium-ion batteries in containers by sea," Van de Velde explains.

Peregrine Storrs-Fox, risk management director at freight transport insurer TT Club says: "As the pressure on all forms of economic activity for decarbonisation increases, the use of these batteries will inevitably escalate at rates we have previously not experienced. Air transport has been heavily restricted already and it is clear that surface modes will be called upon to transport these goods.

"As an adaptable unit, the container will remain a focal point for safe transport, including for EVs alongside other vehicle carriers. The intermodal nature of containers means more actors other than shipping lines, be they manufacturers, packers, forwarders, logistics operators, warehouses and cargo handlers must all be cognisant of the safety issues we are addressing and play their part in ensuring the risks are properly managed."

## SALVAGE GUIDELINES

The International Group's Salvage Committee have drafted new guidelines together with the Joint Marine Claims Committee (JMCC) to help improve collaboration in the handling of shipping casualties.

The protocol document seeks to promote more effective communication between the parties involved that will ensure the prompt deployment of emergency responses services to vessels in distress.

Amy Dallaway, chair of the JMCC, says: "There is clearly a huge benefit to all parties by having effective early engagement between insurers and shipowners that are involved in major casualties, particularly where pressing decisions are required. There are many advantages in understanding the concerns of all interested parties and

this collaborative approach will result in clearer lines of communication and will assist in the efficient management of claims.”

The *Guidelines for casualty liaison between the JMCC and the International Group* establish a high-level structure to facilitate initial contact between London Market underwriters and individual P&I clubs. They also outline minimum details that should be sought for each case.

Ben Harris, chair of the IG Salvage Committee, says: “The guidelines are an important step forward, providing a clear framework for property underwriters and the International Group of P&I Clubs to work closely together in the interest of the assured in a casualty situation.

“By sharing information and knowledge, we can ensure that all stakeholders are aware of what is happening and to the extent possible, there is joined up decision making that avoids delay and ensures the best possible response to a casualty, especially where there is a risk to life, property and the environment,” Harris concludes.

For more information and to download a copy of the guidelines, visit: [tinyurl.com/BTI-MarineCasualtyGuidelines](http://tinyurl.com/BTI-MarineCasualtyGuidelines)

## HANDY MEDICAL GUIDE

Given the remote nature of shipping, seafarers know that their life may sometimes depend on at-hand practical information readily available during the first crucial moments after an on board medical emergency arises.

Medical guidance covering illness, injuries and other health issues needs to be readily available as a vital aid to saving lives, in fact, international regulations call for a medical guide to be carried on commercial ships that do not have a doctor on board, which includes most merchant ships in operation.

Recognising this need, the International Chamber of Shipping (ICS) has published the *International Medical Guide for Seafarers and Fishers*, in collaboration with the International Maritime Health Association (IMHA) and the International Transport Workers’

Federation (ITF). The medical guide’s content has been created by an international team of maritime medical experts that ICS called on to provide the latest medical knowledge on all injuries, illnesses and health issues experienced on ships and fishing vessels.

All members of the guide’s technical review group dedicated themselves to creating a medical guide that could improve seafarers’ working conditions and make a remarkable difference in seafarers’ and fishers’ lives while on board vessels.

“Seafarers are among the most isolated people on earth when it comes to medical care and we should do everything possible to help them and assist them,” says Robert Verbist, president of the IMHA.

The ICS medical guide consists of: the main medical guide, featuring the latest medical knowledge with clear and practical explanations of procedures throughout; a ship’s medicine chest, detailing the medicines and equipment that should be carried on board; and 10 action cards that can be removed and carried anywhere on the ship to immediately assess an emergency medical situation.

The guide features an easy-to-use format for a non-medical professional to navigate and apply in a medical situation, by way of 3D visual aids, tables, charts, and assessments to help crew follow procedures correctly.

In developing this medical guide, ICS emphasised the importance of presenting the information in terminology that can be understood internationally due to the many nationalities that make up modern seafaring, and including the latest medicines that can be sourced in all regions of the world.

Verbist, says: “This guide was reviewed by an international group of maritime medical specialists to ensure the language and terminology are international. Anything being done to improve the health care of seafarers must be done in a multinational context.”

Intended to accelerate the provision of medical care at the place where

it happens, the *International Medical Guide for Seafarers and Fishers* also solves a problem for ships sailing under flags that do not have a national guide. It includes new dedicated chapters on assessing and treating mental health issues, seasickness and how to communicate with telemedical services.

“We recognised the urgent need for updated medical information and this was highlighted when we saw the overwhelming and positive response to the medical materials we published during covid-19,” says Natalie Shaw, director of employment affairs at the International Chamber of Shipping, referring to the extensive resources published by ICS to explain practices to protect seafarer health during the pandemic.

*The International Medical Guide for Seafarers and Fishers is priced at £225 and is available in print and digital ebook. For more information, visit: [publications.ics-shipping.org](http://publications.ics-shipping.org)*

## PORT VULNERABILITIES

US shipping administration MARAD has issued an advisory note warning of threats including cyber attacks and other dangers. The advisory seeks to alert maritime stakeholders of potential vulnerabilities to maritime port equipment, networks, operating systems, software, and infrastructure.

Maritime ports, facilities, and infrastructure, worldwide, are vulnerable to physical and cybersecurity exposure through foreign adversarial access to port equipment and supply chain information management systems.

Specifically, proprietary foreign adversarial companies manufacture, install, and maintain port equipment that pose potential vulnerabilities to global maritime infrastructure information technology and operational technology systems.

In the past few years, the US government has published several documents illuminating the risks associated with integrating and utilising LOGINK, NucTech scanners and foreign port cranes.

The guidance says that potentially impacted maritime industry stakeholders “should apply cybersecurity best practices for Access Control (identity and access management), vulnerability mitigation, and configuration management, and should:

- » Posture themselves to increase their cybersecurity and cyber resiliency to respond to and report any incidents that could inhibit the ability to continue operations.
- » Improve their knowledge of how port equipment is integrated into their port network to mitigate potential vulnerabilities.
- » Stress the importance of understanding and knowing who maintains access to the foreign maritime technology throughout their port or facility.
- » Be wary of untrusted network traffic. Treat all traffic transiting your network – especially third-party traffic – as untrusted until it is validated as being legitimate.
- » Ensure infrastructure operational resiliency, regarding system security, as well as the ability to maintain equipment and sourcing for critical parts and upgrades.”

## CHECKING CYBER HEALTH

Classification society Bureau Veritas meanwhile has launched its new Cyber Health Analysis Report Tool (CHART) to help shipowners gain a better understanding of their ships’ digital architecture (OT/IT), specific vulnerabilities and level of preparedness to potential cyber threats.

The aim is to offer a comprehensive technical assessment of a vessel’s cyber resiliency at specific moments in its lifetime, responding to the need to constantly review, maintain and update systems in the face of evolving cyber threats.

The tool provides a comprehensive audit of the vessel’s equipment, networks, security mechanisms and interconnections, to ensure that these systems are fully known to the owner and validate their compliance with

cybersecurity standards, including recent regulations from, IACS and flag states.

The analysis delivered provides a “cybersecurity health check report”, together with recommended mitigation measures.

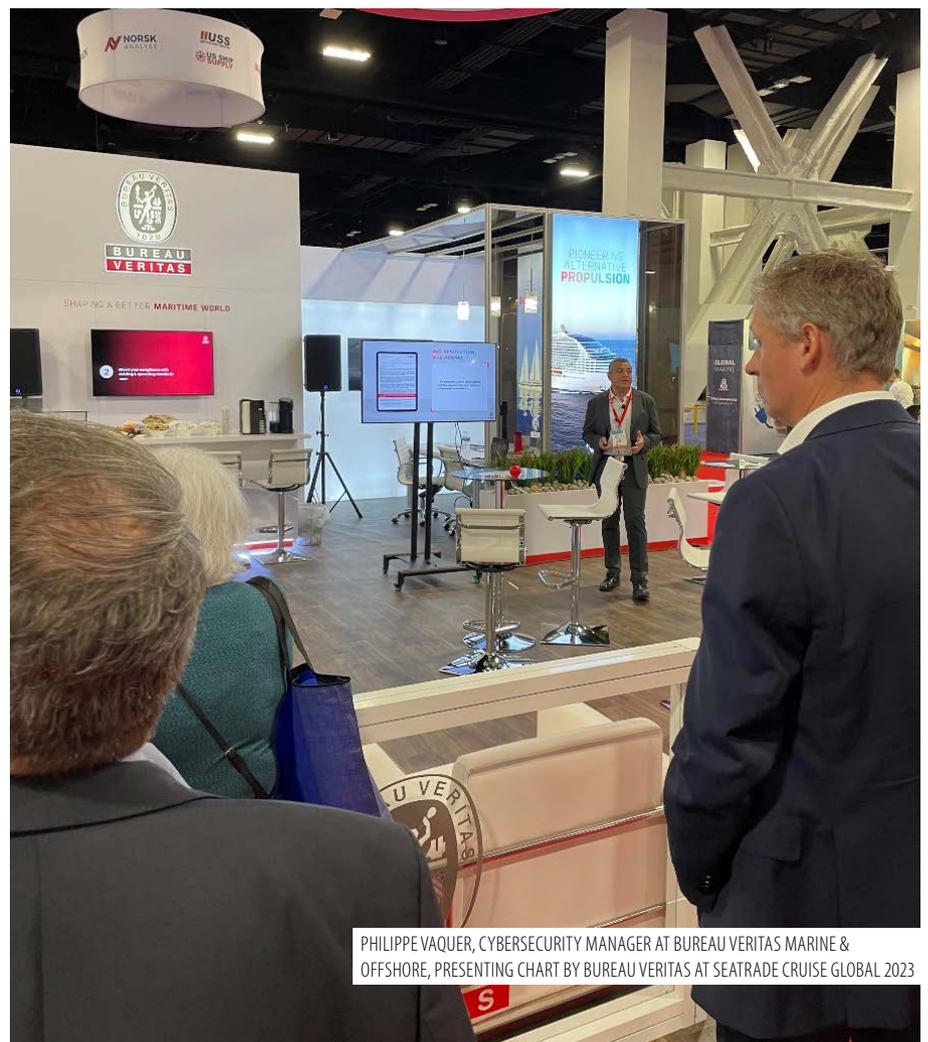
CHART by BV was developed to help shipowners evaluate and increase the cyber resiliency of their vessels, which is a core priority as connected systems have become a common feature of modern ships.

Paul Delouche, strategy and advanced services director at Bureau Veritas Marine & Offshore, says: “The monitoring and remote management of connected and even hyper-connected systems, as well as cloud-based web applications, have become instrumental to improve ships’ performance and efficiency.

“While their benefits are undeniable, these systems also increase the surface for potential cyber-attacks. Such incidents could compromise valuable cargo and entire fleet operations, as well as the safety of the ship and crew. Therefore, cybersecurity must be taken into consideration during the whole lifecycle of a vessel.”

The new tool can validate a ship’s compliance with upcoming IACS Cyber Resilience Unified Requirements UR E26, which will require the implementation of stringent cybersecurity protections and will be mandatory from 1 January 2024.

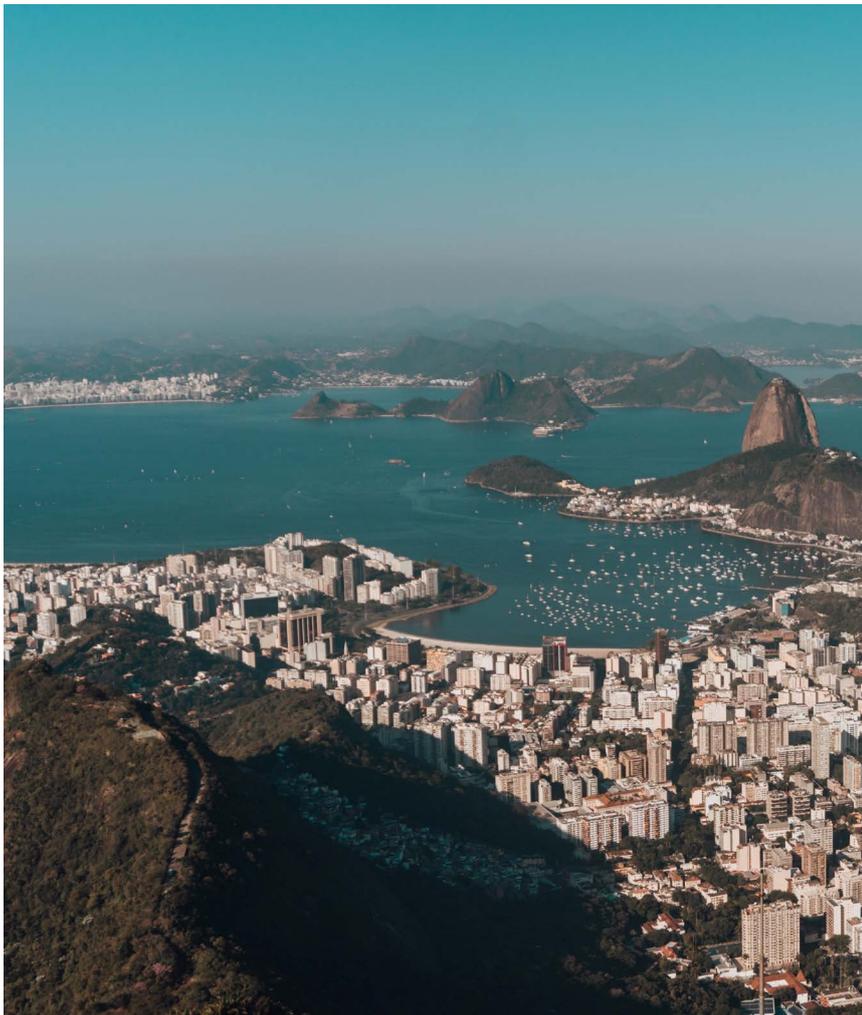
The correct implementation of these standards can be validated by auditing networks and equipment to confirm compliance, and if not, the path towards it.



PHILIPPE VAQUER, CYBERSECURITY MANAGER AT BUREAU VERITAS MARINE & OFFSHORE, PRESENTING CHART BY BUREAU VERITAS AT SEATRADE CRUISE GLOBAL 2023

# GOING FOR GROWTH

South American ports have been forging ahead with investment plans, with increased funds contributing to expanded facilities



**T**he Brazilian port of Itaqui has revealed some of the expansion projects currently planned for the port with manager Maranhao Port Administration Company (EMAP), with moves to build new grain, fertiliser and fuel terminals as well as multi-cargo initiatives and upgrades to the railway network.

In addition, there have been negotiations on fundamental issues for the port in the environmental area, such as decarbonisation and wind energy.

EMAP director of operations Jailson Luz highlights promising projects, such as fertiliser handling, industrialisation of products in the port backyard and alumina handling, with a focus on products for the chemical and pharmaceutical industry.

"These are the projects with the greatest potential that, once realised, expand our investment projection until 2025. We announced R\$3.7bn for this period, adding public and private resources and these projects can bring another R\$1bn to Itaqui," he says.

In January, the Port of Itaqui recorded a total of 2.02m tons of cargo moved, a volume 39% higher than that recorded in the same period in 2022. This is a positive sign for a port that, for six consecutive

years, has been exceeding its annual volume of cargo moved.

In 2022, the public port of Maranhão inaugurated another berth, Berço 99, for pulp cargoes. The infrastructure of warehouses, tanks and railway branches was also expanded with several private investments. For the next four years, R\$500m in EMAP resources are planned, in addition to more than R\$4bn in private resources, continuing the port expansion.

Itaqui Port is located on San Luis Island in the Bay of Sao Marcos, comprising a 1,616m long dock with a water depth of 9m. It has a total of eight operational berths and another is set to open by the end of this year. Itaqui Complex is the largest and the busiest port of Brazil, handling about 146m tonnes of cargo every year and is an important transshipment centre of the South American region.

Major export goods comprise manganese ores, alcohol, aluminium ingots and refined edible oils. It receives shipments of bulk fertilisers, caustic soda, wheat, coal, rice, petroleum products and derivatives, limestone, coke, liquefied petroleum gas, aluminium fluoride, anthracite and miscellaneous goods.

The port's storage facilities include a 7500m<sup>2</sup> warehouse for bulk cargo, a 3,000m<sup>2</sup> storage yard for packed goods and four dockyards spanning 42,000m<sup>2</sup>.

The port has four silos for storing 12,000 tonnes of grain, and three horizontal tanks for keeping 8000 tonnes of rice. The liquid bulk terminal has 66 tanks for storing 320,000m<sup>3</sup> of fuel and petroleum and two LPG tanks with a total capacity of 8,700m<sup>3</sup>.

## INVESTMENT PAYS OFF

APM Terminals Callao, operator of the largest multi-purpose terminal in Peru, has been given a further boost with a new electric panamax ship-to-shore crane and three eRTG cranes.

The US\$25m investment will speed up container operations at the terminal – which account for around half of its total cargo throughput.

The terminal now operates five super post panamax cranes, two

panamax cranes and 15 eRTGs. With container volumes continuing to increase, Javier Vidal, head of operations at APM Terminals Callao, says there's more to come. "In future stages of our concession master plan, we have planned an increase in our fleet of terminal equipment and infrastructure to adequately meet the future demand of Peruvian foreign trade."

In May 2011, APM Terminals Callao signed a 30-year concession contract with the Peruvian State to be the operator of the multi-purpose North Terminal of the Port of Callao. This was followed in November 2022 by an Addendum to the Concession Contract, committing to an investment of more than US\$1.2bn. To date, more than US\$500m has already been invested.

The Callao investment includes electric ship-to-shore cranes and RTGs, investment in electric equipment wherever possible and a move towards electricity from renewable sources will support APM Terminals' industry-leading global commitment to reduce absolute (total) greenhouse gas emissions by 70% in the period 2020-2030 and achieve net-zero emissions by 2040. This is the most ambitious target set by any terminal operator to date.

APM Terminals Callao also has plans to add two free-flow grain loaders and build a grain handling system with 12 silos and a capacity of 60,000 tons. Furthermore, there are plans to acquire three additional ship-to-shore cranes, nine eRTGs and 24 additional terminal tractors, as well as general cargo equipment. In the final stage of the expansion, the terminal will incorporate an additional four ship-to-shore cranes, 12 eRTGs and 24 terminal tractors.

APM's multipurpose north terminal plays a central role in Peru's economic growth: it is essential for the well-being and economic, technological, and social prosperity of the country, including the provision of direct and indirect employment.

The port's implementation of automated gates and streamlining of entry procedures has reduced truck service times by 90%, as well as increasing capacity and efficiency. The APM Terminals group has invested more than US\$520m in the terminal since 2011 to create value in the supply chain and to prepare for the next stages of the modernization project.

Several large-scale such as the installation of roro racks, designed to optimise space in the high-demand terminal and alleviating the high post-covid demand of rolling cargo have been introduced at the terminal. The terminal now has a capacity to store more than 1,000 vehicles in racks where previously only 400 could be stored at ground level.

Other advances that have contributed to increased efficiency as well as safety. Centralised control of new automated grain silos eliminates human risks in the manual opening of the dispatch gates, reduce load losses, enables traceability of the dispatched load and allows a greater number of gates to be activated simultaneously from the silo control room.

Callao is the only terminal on the central coast to operate an automatic fire detection and control system at its Hydrocarbon Pier, safeguarding hydrocarbon ships and, above all, the safety of operators who work remotely from a separate control room.

"We have a real and long-term commitment to the country and to promoting the development of the port sector in Peru," says Leonardo Tello, project director of the Callao Port.

Speaking at the "TOC Americas" event recently, Fernando Fauche, commercial director of Callao Port, stressed that the organisation will continue to focus on "how to create value in the supply chain so that it flows more easily to the consumer".

Callao was also announced as the winner of the AAPA-CIP Award for Excellence in Technology and Innovation last year. The award is an acknowledgement of the many advances at the brownfield terminal.

# CLEANER AND GREENER

New initiatives in the UK's ports are ensuring a concerted move towards net zero, while the announcement of two more Freeports injects some much-needed investment

**T**he UK Transport Select Committee has published its report following its inquiry into Maritime 2050. Maritime 2050 sets out the government's vision and ambitions for the future of the British maritime sector. The Committee heard evidence from a range of witnesses and has made several recommendations including:

- » The government to bring forward the revised Clean Maritime Plan without delay.
- » The need for long-term public investment to help the sector decarbonise.
- » A Department for Transport-led review for training funding in the maritime sector to establish if there are barriers to access and how the system can be improved.

Commenting on the report, a UK Chamber of Shipping spokesperson says: "We welcome the Committee's call to accelerate the review of the Clean Maritime Plan as a shared strategy for the maritime industry to achieve net zero

by 2050. To meet the net-zero target, a mixture of public and private investment will be needed well beyond the levels seen to date. The Committee is right to recognise that this will need long term investment from the government and that a focus on scaling up viable technologies must be a priority.

"Attracting new talent is key for the future success of this vital industry, and we must all work harder to understand and overcome barriers to entering the maritime sector."

The UK Chamber of Shipping has also reacted to the news that from June 2023 for the first time in nearly 18 years an election window for UK Tonnage Tax will open, allowing companies to enter the regime. Following the announcement in the UK Chancellor's budget in March, from April 2024 third-party ship managers will also be allowed to join.

A UK Chamber of Shipping spokesperson says: "Tonnage tax in the UK supports more than 50,000 jobs in the shipping sector and hundreds of millions of pounds of tax revenue. The opening of an election window, for

the first time in nearly two decades, alongside the ability for third-party ship management companies to join is welcome news and will provide companies with a long overdue opportunity to join.

"To ensure our tonnage tax regime is world leading, attracting further jobs and investment into the UK, we do need to see further reform including greater flexibility around how companies are able to opt into the regime."

## DIGITALISATION INITIATIVE

The Port of Cork Company (PoCC) has entered an agreement with Innovez One, a provider of port management systems, to accelerate the digitalisation of its port calls and operations.

Under the agreement, Innovez One will provide its flagship software, marineM, to fully digitise and optimise crucial marine services for vessels arriving and departing Ireland's second-largest port.

MarineM will automate and improve the scheduling of port, tug, and pilotage services, which are crucial for

efficient operations. Using algorithms powered by artificial intelligence (AI) and machine learning, marineM's planning module will manage schedules and dispatch resources – assigning pilots and tugboats to jobs in the most efficient way, and reallocating resources seamlessly if a vessel's ETA changes.

This latest step in the Port of Cork's digital journey will boost the efficiency of service fleets, thereby minimising the overall distance travelled, eliminating unnecessary journeys and reducing greenhouse gas emissions. It will also assist the port in enhancing berth management, which plays a key role in building port resilience and minimising congestion.

Furthermore, agents will be able to register their vessels, order services such as supplies, logistics and marine services, and track the progress of each job from an online portal available on mobile phones. The system will also automate the billing process, which will boost transparency and accuracy, and help eliminate billing issues, delays and disputes.

Conor Mowlds, chief commercial officer at the Port of Cork Company, says: "The Port of Cork plays a central role for our local communities and businesses, keeping Ireland connected as part of global supply chains. We have high ambitions to deliver smarter, greener and more efficient operations, which will benefit our environment as well as the local and national economy. Having a strong digital backbone is essential to this.

"By partnering with Innovez One, we are proud to take the next step of our digitalisation journey, fully harnessing the latest advances in artificial intelligence to create a more efficient and sustainable future."

Grant Ingram, CEO of Innovez One for the UK and Europe, says: "Digitalisation is an essential foundation that enables ports to tackle the most pressing challenges they face today, from persisting congestion to the need to reduce their emissions. Smart ports will also be the ones best placed to position themselves in the greener supply chains of tomorrow, and support



PORT OF CORK COMPANY AND INNOVEZ ONE REPRESENTATIVES PICTURED AT THE TIVOLI CONTAINER TERMINAL, PORT OF CORK

decarbonisation in shipping and beyond. We are proud to work with the Port of Cork on this project, which will show how our state-of-the-art technology can deliver new heights in terms of efficiency and help deliver their ambitious vision for the future."

## FIRST FREEPORTS FOR WALES

The UK and Welsh governments have confirmed that Anglesey Freeport and Celtic Freeport have been successful in their bids to establish new freeports

Backed by up to £26m each in UK government funding, the two freeports will help to level up Wales and bring new, high-skilled jobs

The new sites are expected to bring forward an estimated £5bn of private and public investment and create around 20,000 new, high-skilled jobs

The two new freeports, one in Anglesey and one in Port Talbot and Milford Haven, will help to create jobs, drive growth and level up opportunities across Wales.

Freeports are special areas within the UK's borders where different economic regulations apply. Alongside a comprehensive package of benefits, the sites will enjoy tax and customs incentives to boost investment, creating

thousands of high-quality jobs in some of our most disadvantaged communities.

Prime minister Rishi Sunak said at the announcement: "Wales is a thriving part of the UK, and today's new freeports will see businesses and opportunities for people in and around Anglesey, Port Talbot and Milford Haven go from strength to strength."

First minister of Wales, Mark Drakeford added: "The Welsh government has a clear economic mission to transform the Welsh economy, creating a stronger, fairer and greener future. The designation of these sites as Wales' first freeports will reinforce that mission, building on the significant investments and partnerships we have made in these regions over many years.

"The joint working between governments on the freeport programme should serve as a blueprint for future intergovernmental work on a whole range of issues."

Anglesey and Celtic Freeports will support businesses to create high-quality, well-paid new jobs, promote growth and regeneration, and make a significant contribution to achieving the UK's net-zero ambitions.

Anglesey Freeport aims to attract £1.4bn worth of investment in the

green energy sector and create at least 3,500 jobs, generating half a billion in additional gross value added by 2030.

The Freeport will have a focus on marine energy technology and low-carbon energy and will embark on a variety of infrastructure programmes, including the Holyhead port redevelopment and the restoration of the railhead and track.

Celtic Freeport aims to attract significant inward investment, including £3.5bn in the hydrogen industry as well as the creation of 16,000 jobs, generating £900mn in gross value added by 2030. The Freeport will focus on low-carbon technologies such as floating offshore wind, hydrogen, carbon capture, utilisation and storage and biofuels to support the accelerated reduction of carbon emissions.

This will be supported by the development of land and quayside space and bringing a disused railhead back into operation, to enable infrastructure to support development.

The UK government's Plan for Wales commits to strengthening Wales' place at the heart of a prosperous UK, growing the economy, levelling up and spreading opportunity right across Wales.

Bidding opened earlier this year and groups submitted their proposals for Freeport status, which were jointly considered by the UK and Welsh governments. As part of the process, the successful locations had to demonstrate to officials and ministers from both governments how they would regenerate local communities, establish hubs for global trade and foster

an innovative environment to support levelling up.

The UK and Welsh governments will work closely with the freeports to ensure they deliver maximum positive impact and become operational as soon as possible.

This builds on the UK government's Freeport programme in England, where all eight Freeports are open for business, and collaboration with the Scottish government to deliver two new Freeports in Inverness and Cromarty Firth and Firth of Forth. The government also aims to establish at least one Investment Zone in Wales, which will work hand in hand with the freeport programme to generate sustainable economic growth and level up communities in Wales and across the UK.

The British Ports Association welcomed the announcement that the Celtic Freeport and Anglesey Freeport bids have been successfully awarded Freeport status, but it suggested that policymakers should look to grant other locations a similar status.

Richard Ballantyne, chief executive of the Association says: "We congratulate the Celtic and Anglesey Freeports and look forward to following their journey. It's been a sensible and pragmatic decision to grant two Freeports, meaning both north and south Wales are included so we applaud the agreement reached between the UK and Welsh governments.

"However, in addition there are several other port locations elsewhere that are and could also be hubs of economic activity so let's not forget these sites."

## HARWICH UPGRADE

Harwich Haven Authority has awarded a contract to Kongsberg Norcontrol for the supply, commissioning and support of a Vessel Traffic Services (VTS) system and a Port Management Information System (PMIS).

The VTS system is based on Kongsberg Norcontrol's seventh-generation VTS system that is in service with ports around the world. In combination with its fully integrated PMIS this will ensure vessels visiting the Haven are managed both efficiently and safely.

"The Authority is very focused on meeting our customers' requirements, not only current VTS and PMIS requirements, but also has an ambitious and innovative vision for future requirements such as e-navigation and autonomous shipping," says Sarah West, CEO Harwich Haven Authority. "Kongsberg Norcontrol shares that vision and ambition and has the required capability and potential for growth."

Steve Guest, managing director, Kongsberg Norcontrol, comments: "Robust tracking of such a diverse mix and size of ship types within the Haven is fundamental to any VTS system and requires smart tracking and sensor fusion algorithms using all available tracking sensors, especially radar.

"Our seventh-generation C-Scope VTS system excels in this respect and ensures that VTS operators are provided the right information, at the right time for informed decision making. The decision support tools provided are highly configurable and ensures only meaningful alerts are provided."

Nick Lambert, head of business systems, Harwich Haven Authority, identified compliance to the Network and Information Systems Regulations as a critical success factor for the project.

## UK PORTS CONFERENCE

Industry leaders will convene on 24-25 May to discuss innovative growth strategies, as well as provide essential updates for the ports sector.

The annual UK Ports Conference 2023, which returns for its 15th year with keynote addresses from industry and



policymakers, will take place at Congress Centre in London. The key themes to be explored at this year's conference will be implementing growth strategies – the areas for expansion, and how to deliver infrastructure to support these and maximise opportunities in new digital technologies.

Support for energy development is an issue of particular importance as the country looks to bolster energy security in light of soaring energy prices over the past 12 months, triggered by the war in Ukraine. Industry leaders in this field will explore energy development in the likes of offshore wind and hydrogen, as well as examine pathways to decarbonisation and net zero.

The two-day event will be chaired by Richard Ballantyne, chief executive of British Ports Association.

For more information and to register for the 15th UK Ports Conference 2023, visit the event website at: [ukportsconference.co.uk](http://ukportsconference.co.uk)

## HYBRID VESSEL CLEANS UP

Associated British Ports' (ABPs) Port of Lowestoft's newest and most sustainable, multi-purpose work boat, the *Gannet* has been delivered.

The craft's principal function is to support the efficient collection of litter, debris and aquatic vegetation from the water surface, and it will play a vital role in helping to keep Lowestoft Harbour and Lake Lothing clear of pollution.

*The Gannet's* sustainability contribution to the Port of Lowestoft extends beyond the collecting of litter. It is hybrid-powered, with its solar-panelled roof generating green electricity and is made from recycled aluminium, which can be recycled again at the end of its life.

The vessel's developer, Water Witch, is a Liverpool-based, family-owned business, which has developed a range of workboats that can be used to perform a wide range of duties in addition to debris removal. *The Gannet* is its Versi-Cat Trash Skimmer, and was delivered to the Port of Lowestoft in March to function as the port's new primary work boat.

Tom Duit, operations manager at ABP's Port of Lowestoft, says: "We are delighted to welcome a new highly

sustainable craft to our fleet of vessels. *The Gannet* will play a vital role in helping us with the clearance of litter that regularly accumulates in the harbour as a result of the strong prevailing from the southern North Sea.

"The new craft will also play an important role in supporting our day-to-day operations, for example supporting vital bridge maintenance activities, in a more sustainable way.

ABP's investment in *The Gannet* is the latest step in its recently published its wide-ranging new sustainability strategy – "Ready for Tomorrow" – which is backed by a plan to invest around £2bn across decarbonising its own operations by 2040 at the latest and in major infrastructure projects to enable the wider UK energy transition.



Our ports demonstrate how offshore wind can catalyse investment and high-quality job growth

## WIND PLAN UNDER WAY

Maritime UK's "Offshore Wind Plan" reaffirms the critical role its ports play in enabling the UK's clean energy transition.

The comprehensive 'Offshore Wind Plan' makes a series of recommendations for how the maritime sector, the offshore wind sector, and governments can work together to deliver maximum economic benefit from the growth of offshore wind across the maritime supply chain in sectors like ports, shipbuilding, crewing and professional services.

Key recommendations include the creation of quality career pathways

for young people, rewarding higher UK supply chain content in offshore wind projects, reforming the planning system to enable green projects to be delivered quicker and encouraging lenders and investors to finance infrastructure and vessels.

Opportunities identified in the plan include building vessels in the UK to support developments and further growing UK ports as centres for manufacturing and assembly for offshore developments.

Associated British Ports (ABP) welcomes the report. It already deploys offshore wind at its Ports of Grimsby and Hull, supporting operations and maintenance (O&M) and blade manufacturing in Green Port Hull. The company also has ambitions to build on its expertise and collaborate with partners to develop additional facilities to support green growth in the sector at the Lowestoft Eastern Energy Facility (LEEF) and Future Port Talbot.

Development of floating offshore wind in Port Talbot could kick-start a green industrial revolution in Wales, resulting in thousands of high-quality jobs, triggering the growth of a new supply chain, and creating new export opportunities.

Andy Reay, head of offshore wind for ABP, comments: "Our ports, such as Grimsby – the world's largest offshore wind O&M port – demonstrate how offshore wind can catalyse investment and high-quality job growth, an impact that should be hugely boosted by the new generations of floating offshore wind.

"We need a strong partnership approach between supply chain players, industry, governments and local communities to achieve the ambitions of the plan and deliver environmental and economic opportunities for the UK."

This commitment to supporting green growth projects is closely linked to ABP's net zero sustainability strategy, ABP Ready for Tomorrow, which was launched on 28 February this year and sets out a plan to reach net-zero greenhouse gas emissions from ABP's own operations by 2040.

# CLIMATE COLLABORATION

Co-operative efforts to come up with green solutions have been a key element of associations between different countries in the past few years



**A** Memorandum of Understanding (MoU) has been signed by the International Maritime Organization (IMO), the Ministry of Climate and Environment of Norway, and the Maritime and Port Authority of Singapore (MPA).

The MoU is intended to collectively undertake technical cooperation activities to assist developing countries in their efforts to reduce emissions from ships and in ports.

Participants will work together to exchange experience, knowledge and best practice, and undertake joint resource mobilisation with a view to co-operating and collaborating on actions to reduce greenhouse gas (GHG) emissions from ships and the activities of ships in ports, within the frameworks of the NextGEN Connect initiative and the GreenVoyage2050 Project.

The NextGEN Connect initiative was established between the IMO and the MPA in April 2022. The initiative aims to bring industry, academia and global research centres together, to offer inclusive solutions for maritime

decarbonisation for trials along shipping routes.

The IMO-Norway GreenVoyage2050 Project was established in May 2019 by the IMO, with funding from the government of Norway to support developing countries, including Small Islands Developing States (SIDS) and Least Developed Countries (LDCs), in their efforts to implement the Initial IMO Strategy on the Reduction of GHG Emissions from Ships.

The MoU was signed on 20 March by Kitack Lim, secretary general of the IMO, Sveinung Oftedal, chief negotiator for green shipping of the Norwegian Ministry of Climate and Environment, and Teo Eng Dih, chief executive of the MPA.

Lim commented at the time of signing the MoU: "IMO is pleased to combine the capabilities of the IMO-Norway GreenVoyage2050 project and the IMO-Singapore NextGEN Connect initiative to collectively implement green shipping activities, in particular those that can support development of low and zero-carbon fuels and related bunkering infrastructure."

"Joining forces through this co-operation will strengthen the support to decarbonising the maritime sector in developing countries. We very much look forward to working together with Singapore in these supportive actions, as well as widening the co-operation with the IMO in its leading role to assist decarbonisation of the maritime sector in developing countries," said Oftedal.

Eng Dih, meanwhile, commented: "We are pleased to collaborate with the IMO and the Norwegian Ministry of Climate and Environment to accelerate decarbonisation efforts in the maritime industry. This MoU is an extremely important partnership that brings together our projects with the mutual goal to test solutions along shipping routes. This will help reduce greenhouse gas emissions from shipping in an inclusive manner and with the support of like-minded States, aggregate demand along the supply chain."

### Singapore: TUAS Port

Singapore's Port of Tuas was officially opened in September last year. When fully completed in the 2040s, it will be the world's largest fully-automated terminal, with a handling capacity of 65m TEUs, almost double the handling volume of 37.3m TEUs in 2022.

Development of Tuas Port is over four phases. Reclamation works for Phase 1 commenced in February 2015 and were completed in November 2021. Reclamation works for Phase 2 commenced in March 2018 and are currently about 60% completed. When the berths in both phases are fully operational, Tuas Port will reach an annual handling capacity of more than 40m TEUs.

The Maritime and Port Authority of Singapore (MPA) has started planning and design works for Tuas Port Phase 3. Reclamation works for Phase 3 are expected to be completed in the mid-2030s.

To improve Tuas Port's accessibility for its workers and users, MPA will collaborate with port operator, PSA Singapore, government agencies, industry partners and unions to form a tripartite committee in 2023 to co-create various transportation options for port workers and users.

### Singapore: 5G coverage

To further maritime digitalisation and the development of future concept of operations, Maritime and Port Authority of Singapore (MPA) and Infocomm Media Development Authority (IMDA) signed a MoU in August 2022 to provide full maritime 5G coverage in major anchorages, fairways, terminals and boarding grounds by mid-2025.

Twelve maritime 5G base stations will be set up to complement the onshore 5G communication infrastructure. Three of the base stations will be ready in 2023 to support testing and development of new digital applications, such as remotely assisted pilotage advisory, digital bunkering, delivery drones, and telemedicine. The remaining nine base stations will be set up by 2025.

To further strengthen vessel navigational safety and efficiency of the port as growth of the port

continues, MPA is developing an artificial intelligence-enabled Next Generation Vessel Traffic Management System (NGVTMS) to replace the existing Vessel Traffic Information System (VTIS).

With data analytics and machine learning to identify traffic hotspots as well as advanced algorithms to predict potential collisions, the NGVTMS will allow MPA to provide seafarers with more accurate and timely information to take early actions for navigational safety. Secured and reliable data transfer between ship-ship and ship-shore for NGVTMS can be facilitated through various connectivity platforms such as the VHF Data Exchange System (VDES) and the maritime 5G network.

The NGVTMS will be developed in three phases.

- » Phase 1 – Innovation Programme [2018- 2021]: MPA completed a three-year Innovation Programme in 2021 to develop and test new operating concepts and technologies to enhance navigation safety and efficiency of vessel traffic management.
- » Phase 2 - Prototyping [2023 - 2024]: MPA will start to develop a system prototype in April 2023 to test various vessel traffic management applications such as the Smart Collision Detection and Proactive Traffic Management in a real-time sandbox operating environment. This will enable MPA to gain insights on potential new capabilities and scope the requirements and specifications for system implementation.
- » Phase 3 – System Implementation [2024-2027]: The final phase will consist of design, development, installation, testing, and commissioning of the NGVTMS. The system will be deployed from 2025 for 24/7 operations.

As maritime systems become increasingly digitalised, Singapore must also be prepared with the right tools to manage the risk of cyber incidents that could disrupt the flow of vessels and cargo at our ports. MPA will establish the Maritime Cyber Assurance and Operations Centre (MCAOC) by 2025 to provide real-time security monitoring

and disseminate information to mitigate cyber threats, advise on system recovery and measures to take following an incident, and facilitate cyber threat information-sharing among maritime stakeholders such as port and terminal operators, shipping lines and marine service providers with digital systems

### Singapore: alternative fuels

To prepare Singapore for a multi-fuel bunkering future, Maritime and Port Authority of Singapore (MPA) has developed the world's first marine biofuel provisional standard in consultation with the industry and researchers for biofuel blends of up to 50% or B50.

This standard will be updated progressively as trials for biofuel blends of up to 100%, or B100, are carried out, and is expected to be completed by 2025. Singapore's Maritime Energy and Sustainable Development Centre of Excellence will also be releasing the findings of its compatibility study on various biofuel types and percentage blends for our harbour crafts this year.

Aside from biofuels, MPA is exploring the use of hydrogen and ammonia to support the decarbonisation of international shipping. In December 2022, MPA and the Energy Market Authority launched an Expression of Interest (EOI) to build, own and operate low or zero-carbon ammonia power generation and bunkering solutions on Jurong Island. The EOI is open until end April 2023.

### Singapore: hydrokinetic energy

The Maritime and Port Authority of Singapore (MPA) is collaborating with Bluenergy Solutions, to launch a Proof of Value (POV) project to harness hydrokinetic energy off the island of Pulau Satumu, Singapore, as an alternative to the transport of diesel to generate power for facilities supporting Raffles Lighthouse (RLH).

The POV project is a "Plug and Play" solution where underwater turbines, designed by Bluenergy and A\*STAR's Institute of High Performance Computing (IHPC) researchers to optimise the hydrodynamic features of the tidal turbine, will be deployed

off Pulau Satumu to convert the kinetic energy of moving water into electrical energy.

The POV project is expected to commence in April 2023 and will run for six months. An estimated 2700kWh of electricity is expected to be generated from four units of turbines used for the POV project during this period. The electricity will be used to power up the non-operational electrical requirements for RLH located at Pulau Satumu, including the RLH living quarters' electrical needs. During the POV project, the RLH navigational lantern will continue to be powered by the existing solar-based energy system.

A site assessment was conducted and measures have been taken to ensure the safety in the surrounding area. Sensors will be installed to monitor the movement of marine life around the deployment area. The turbines are designed to spin at relatively low Rotation Per Minute (RPM) and will come to a stop within safety distances to avoid risks of injury to marine mammals.

This project will lead to carbon emission savings. MPA will conduct further hydrographic surveys and work with research agencies, to explore the potential of scaling up the use of tidal energy for other waterfront facilities and electric charging locations for vessels in Singapore.

MPA is committed to supporting the development of clean and renewable

energy sources to reduce the carbon footprint of the maritime sector and looks forward to the success of this POV project.

### Singapore: green corridors

The Maritime and Port Authority of Singapore signed a MoU late last year with the Port of Rotterdam to establish the world's longest "Green and Digital Shipping Corridor".

The corridor will pilot the deployment of digital solutions, support investment in green infrastructure, and develop enablers to accelerate low and zero carbon shipping.

### OFFICE OPENING

Global shipping and logistics provider GAC Group has joined up with SME Logistics Holding to open its first office in Vietnam as part of the company's continued expansion in Southeast Asia and the Asia-Pacific region.

The office, located in Ho Chi Minh, supports customers at ports along the Saigon River with an integrated portfolio of shipping, logistics and marine services to a wide range of sectors, including dry and liquid bulk, liners, FMCGs and offshore energy.

"We have been active in Vietnam for many years through our work with local partners and agents, but the time is now right to set up our own operational office in Vietnam" says Daniel Nordberg, GAC's group vice president, Asia Pacific &



DANIEL NORDBERG, GAC GROUP VICE PRESIDENT, ASIA PACIFIC & INDIAN SUBCONTINENT

Indian subcontinent. “The combination of GAC’s global network with the strong local presence and know-how of SME Logistics will mark a new chapter for us.”

The launch of the new facility comes in response to growing customer demand for shipping and logistics services in the region, as well as providing an opportunity to support exploration, production and maintenance operations for Vietnam’s burgeoning offshore wind farm projects.

GAC’s office in Vietnam follows the opening of a new office in Taichung, Taiwan, in November 2022. Establishing GAC’s footprint in Vietnam comes as the Southeast Asian country undergoes a renewable energy revolution with a target of being net zero by 2050. Vietnam is planning to scale up its wind-power generation capabilities to about 30% by 2050, up from 5% currently, with more than 120 offshore wind farm projects currently under scheduled for construction.

## SWIRE BULK JOINS SSI

Swire Bulk is the latest member of the Sustainable Shipping Initiative (SSI), joining ambitious organisations across the maritime ecosystem in working towards a more environmentally, socially, and economically sustainable shipping sector.

Headquartered in Singapore, Swire Bulk is a vessel owner and operator in the dry bulk sector, with a trading fleet of around 150 handysize and supramax vessels commercially controlled by eight global offices. The company was first founded in 2012 as a division within the China Navigation Company (CNCo) and separated from CNCo in 2021 to stand alone as the specialist bulk trading arm of the multinational Swire Group.

Swire Bulk is committed to being a leader in sustainability and to contribute to the decarbonisation journey of the maritime sector. The company has already embarked on a number of projects focusing on decarbonisation, alternative fuels, and protecting marine biodiversity as well as being a member of various industry forums.

Through membership of the SSI, Swire Bulk looks forward to collaborating

with leaders in sustainability across the maritime industry to support progress at a critical time.

Swire Bulk chief executive officer Peter Norborg says: “As Swire Bulk continues to build and cement its standing in the dry bulk shipping sector, we continue to stay true to our Swire vision – one of which is to set standards on sustainability. Sustainability has never been more important and is always a key topic when engaging with all our customers.

“Being part of the SSI enables us to be part of the wider green solution, so that we can continue to deliver first-in-class services to our clients while being prudent and responsible towards the environment that we operate in. We are excited to embark on a new chapter and partnership with SSI, and explore more sustainable solutions that will be fit for the future.”

The SSI is a multi-stakeholder initiative that brings together leading organisations with shared goals and equal determination in improving the sustainability of the shipping industry in terms of social, environmental and economic impacts. Ranging from NGOs to shipowners, charterers, banks, and classification societies, SSI members work toward the milestones laid out in the Roadmap to a sustainable shipping industry.

## ABS LINKS KOREAN SHIPYARDS

Classification society ABS is leading a project to advance the shipbuilding industry’s decarbonisation efforts with a joint development project involving all the leading Korean shipyards plus classification group Korean Register to address a growing need in the calculation of greenhouse gas (GHG) Scope 3 emissions.

With key Korean shipyards HD Hyundai Group, Korea Shipbuilding & Offshore Engineering, Hyundai Heavy Industries, Hyundai Mipo Dockyard, Hyundai Samho Heavy Industries, Samsung Heavy Industries and Daewoo Shipbuilding & Marine Engineering, the JDP aims to create a standardised approach that could potentially apply across the whole industry.

Scope 3 in the shipbuilding industry includes GHG-generated emissions at all

stages of the process, from procurement of raw materials to ship operations and final disposal – in addition to GHG (Scopes 1 and 2) directly and indirectly emitted during the shipbuilding process.

“Market demand for measuring Scope 3 emissions is growing, but there is no standardised methodology yet,” says Panos Koutsourakis, ABS vice president, global sustainability. “ABS is at the forefront of maritime decarbonisation research projects and verification studies. We are the ideal partner for this group of industry-leading organisations to create a new global standard for Scope 3 – measuring, qualifying and mitigating the data to understand a company’s carbon footprint in greater detail.”

“Our collaboration to standardise Scope 3 emissions in the shipbuilding industry is a vital step towards a sustainable future,” says YoungHo Lim, senior executive vice president and chief operating officer, Hyundai Heavy Industries. “By working together, we not only benefit our individual companies but also contribute to reducing our environmental impact and creating a more sustainable world in the whole shipbuilding industry.”

## BIOFUEL BUNKERING

GoodFuels has announced the successful completion of a first biofuel bunkering in collaboration with Hyundai Glovis, a global total logistics and distribution company. The bio-bunkering is the first for a Korean flagged pure car and truck carrier vessel and marks a new milestone for Hyundai Glovis as biofuels take a central role in the company’s sustainability strategy.

Vehicle carrier *Glovis Sunrise* was refuelled with 500 tonnes of GoodFuels’ sustainable biofuel blend MDF1-30 during a port visit to Vlissingen (Flushing), in the Netherlands, in December 2022. The trial took place during the vessel’s voyage between Europe and the Persian Gulf, ending in late January.

GoodFuels’ next-generation sustainable biofuel is produced from feedstocks that are certified as 100% waste or residue, including processed used cooking oil and animal waste fats. It delivers a well-to-exhaust CO<sub>2</sub> reduction



of 80-90% when compared with its fossil fuel equivalent. Thanks to its drop in properties, the biofuel was delivered to and consumed by the *Glovis Sunrise* without requiring any modifications to the engine or tanks.

Dirk Kronemeijer, CEO of GoodFuels, says: "This first bio-bunkering in collaboration with Hyundai Glovis marks an exciting milestone towards decarbonised maritime transport and more sustainable supply chains. It also shows the central role that biofuels can play to reduce shipping's carbon footprint today, as a safe, convenient and technically viable option to slash emissions from commercial vessels by up to 90%."

Commenting on this first bio-bunkering Tae-Woo Kim, senior vice president, head of shipping business division, at Hyundai Glovis says: "In a fast-evolving business environment, we are committed to continuously innovate to deliver greater sustainability across our logistics and shipping activities. This means exploring a number of options to decarbonise our fleets, today and in the future."

"As we strive to provide efficient and sustainable maritime transportation to global automotive manufacturers,

including Hyundai Motor Group, Kia, and Volkswagen, we are delighted to see the results of this biofuels trial, which shows that tangible emissions reductions can be achieved today on existing fleets.

"Biofuels will also play a key role in our future strategy, as we continue to develop a maritime transportation system tailored to the green supply chains of the future."

## SUCCESS IN SHIP TEST

The launch ceremony for a liquefied CO<sub>2</sub> (LCO<sub>2</sub>) transportation demonstration test ship took place in March at Mitsubishi Shipbuilding Corporation's Shimonoseki Shipyard.

The demonstration test ship hull is equipped with a liquefied CO<sub>2</sub> tank system researched and developed by the Engineering Advancement Association of Japan (ENAA). After completion, the demonstration test ship will be engaged in liquefied CO<sub>2</sub> transportation for carbon capture, utilisation and storage (CCUS) research and development and demonstration projects, which have been conducted by NEDO since June 2021.

ENAA, Kawasaki Kisen Kaisha (K Line), NGL, and Ochanomizu University

will accelerate their research and development of the LCO<sub>2</sub> transportation technology and contribute to the reduction of the cost of CCUS technology and realisation of LCO<sub>2</sub> safe large-scale long-distance transportation.

ENAA has been engaged in research and development towards the operation of a demonstration ship equipped with a LCO<sub>2</sub> ship tank system and it will continue to be responsible for the planning, analysis and supervision of the demonstration test.

K Line carried out a risk assessment of the demonstration test ship in the safety evaluation in 2022 and will contribute to the development of an operation manual for the demonstration vessels.

NGL is proceeding with the planning of the management and operation of the demonstration vessel. In addition, NGL is conducting a case study of its own LPG vessel in preparation for the measurement of data related to the temperature, pressure, flow, and so on of the CO<sub>2</sub> on the demonstration vessel.

Ochanomizu University conducts fundamental research on the control of the state of carbon dioxide (phase changes) and provides the information necessary for safe transportation studies.

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The conflict in Ukraine had a serious impact throughout 2022 on bulk trade flows. This will undoubtedly continue this year. And while the world may be opening up, the effects of covid-19 will continue to affect global supply chains. Lisbon will examine the impact of both on bulk terminal operations – both short term and in the future.

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