BULK TERMINALS *international*

AUTUMN 2022

THE OFFICIAL MAGAZINE OF THE ASSOCIATION OF BULK TERMINAL OPERATORS

RIGA ROUND-UP

Catch up on all the news from ABTO's recent conference in Latvia

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Passion for Performance.

PEOPLE POWER

BY SANDRA SPEARES

The recent Bulk Terminals conference in Riga was a long-awaited chance to meet friends, colleagues and industry experts in person to discuss the industry's most pressing issues

Chances to get together in person have been somewhat limited in recent times, so it was extremely encouraging to see so many members of ABTO getting together at the Bulk Terminals 2022 conference in Riga to explore new developments and challenges faced by industry operators in the present time.

Not only did it give those visiting Riga the chance to visit the port facilities and historic capital, but also to air some of the issues that the industry is addressing – not least on the effect of political developments, how restrictions on trade are progressing and how energy costs are affecting business.

There is plenty of work going into improving energy efficiency and lessening emission footprints, but also shipment and logistic challenges. In a number of cases, the concept of just-in-time deliveries has taken a back seat and companies have to adapt to different routes, new suppliers and a whole new set of challenges.

Updated strategies have to take into account new supply chains and what will happen to freight rates over the coming year as operators adapt to demand for product from new suppliers and demand for ships changes.

The industry also faces a new surge of regulation implementation and market players must decide how they adapt to this state of affairs. They also need to address the issue of a move towards new energy supplies and how they will adapt to the zero-carbon challenge.

Meanwhile, the demands of the Chinese market and other developing countries will take centre stage as suppliers seek to establish whether the uptake of commodities and bulk products will change dramatically.

Bulk cargoes such as iron ore have dominated in certain ship segments and it remains to be seen how these will be affected if demand for iron ore declines rapidly in markets such as China.

“There is plenty of work going into improving energy efficiency and lessening emission footprints

It will be interesting to see how the aluminium market might develop if creating products in the metal grows rapidly as shipowners see to reduce weight – not to mention demand for specialised alloys to meet the low-carbon future.

While the move continues towards greener fuels, there is still substantial demand for coal, the death of which has yet to be delivered.

Covid-19 has obviously had a role to play in congestion build up in ports and this congestion has had an inevitable effect on market dynamics. This is bound to change as the backlog of vessels due to port regulatory controls continues to ease.

So how do you make money out of your operations? Value engineering is the name of the game, delegates at the conference heard. The idea is to find cheaper ways of doing things, without compromising functionality, of course.

We hope you enjoy this edition of Bulk Terminals International which includes a round-up of events and presentations at the recent conference in Riga.

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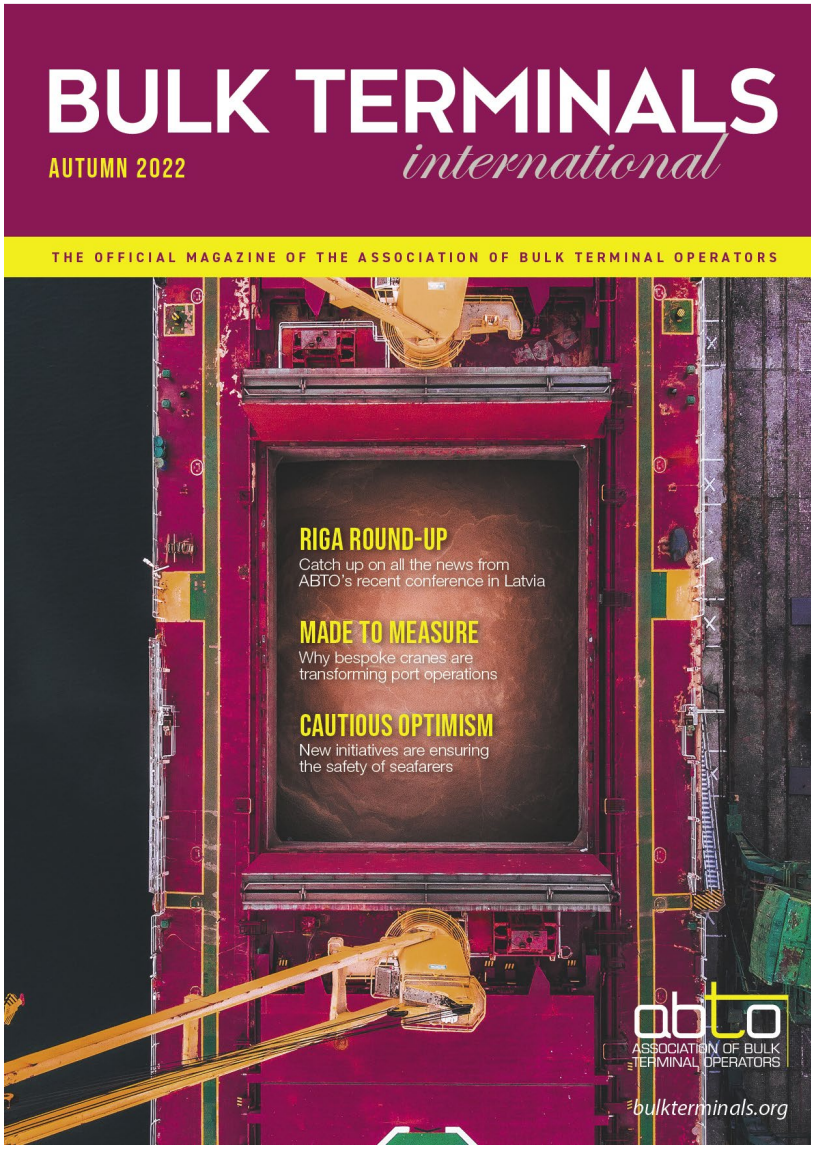

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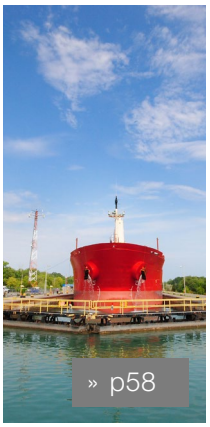
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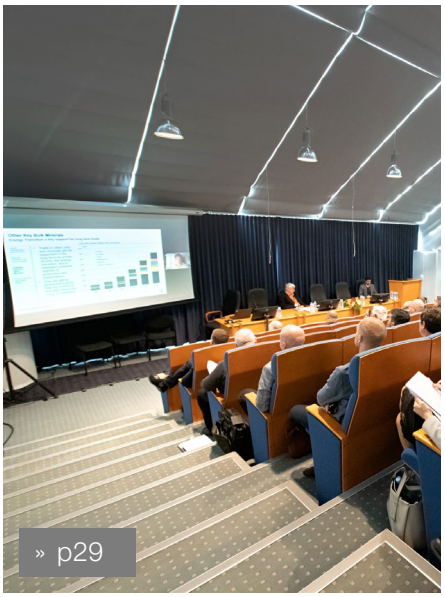
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REMARKABLE RIGA

BY SIMON GUTTERIDGE

We have just returned from our annual ABTO conference, Bulk Terminals 2022 in Riga – a resounding success and the first time we have all been able to meet in person since 2019 in Amsterdam

ABTO has set out its stall for our annual gathering as the only event aimed at the entire bulk terminals industry – and as such the one must-attend conference for our industry.

Each year, the programmes for our annual ABTO Bulk Terminals conference are designed for all those involved in the transportation, storage and handling of bulk commodities.

This year, as guests of our host port the Freeport of Riga Authority, we all met in Latvia. It was without a doubt the most exciting and well-attended Bulk Terminals conference we have held. And not only because it was first time in three years that we all had the chance to network and learn; in no small measure, the generous hospitality extended to us by the Freeport of Riga Authority contributed to the success of the event.

The conference always sets the scene with an analysis of bulk markets. It then continues with a full programme focused on the concerns of operators, each year offering sound practical solutions for improving safety, streamlining operations and ensuring environmental protection. Digitalisation, the cyber threat, development opportunities and, naturally, the ongoing effect of covid-19 and the conflict in Ukraine on bulk terminal operations were also covered this year.

The week before our conference, there had been a general election in Latvia. The current transport minister, Tālis Linkaits, was due to welcome delegates on behalf of the Ministry of Transport and the government of Latvia. Since the new government was in the process of being formed, Linkaits was replaced by Elina Luce, head of department at the Transport Logistics and International Cooperation Coordination Department of the Ministry of Transport. Elina was followed in welcoming delegates by Viesturs Zeps, chairman of the board, and Ansis Zeltiņš, CEO, both at the Freeport of Riga Authority.

Conference chairman Professor Mike Bradley, director of The Wolfson Centre for Bulk Solids Handling Technology at the University of Greenwich, then opened the business side of the conference. He introduced Rahul Sharan, lead analyst bulk shipping research at Drewry, as the chairman of the markets session. Rahul spoke on the 'Effects of the conflict in Ukraine on grain markets'. Presentations followed on 'Prospects for the minerals dry bulk market in 2022 and beyond' from Maritime Strategies International's director Will Fray and 'The future of coal – short, medium and long term' from Basil Karatzas – who readers will recognise as a regular contributor to *Bulk Terminals International*.

Garry O'Malley, operations director at Teesworks and chairman of the ABTO Technical Committee, was chairman of the operations session. Bradley spoke on the 'Dangers of value engineering'. Two of our sponsors then followed with presentations: Lodovico Bernardi, director Asia Pacific for Bedeschi, on 'The benefits of bespoke designing for purpose' and David Ingvarsson, European sales manager for Bruks Siwertell on 'Technical routes to improved OPEX'.

Case studies are among the most popular presentations and O'Malley's own experiences at Teesworks, the largest development in Europe, and Cristian Valenzuela, CEO of Puerto Panul in Chile on 'Operational improvements for better efficiency at Puerto Panul' were no exception.

Frank van Laarhoven, senior sales manager for Europe at RAM Spreaders – another of our sponsors – then spoke of the operational and environmental 'Benefits of containerised bulk handling'.

Achieving buy-in for change from the whole workforce is often difficult to achieve. Ian Mills, assistant lecturer, Solent University and director, Lawrence Mills Consulting, described one of the methods to achieve this outcome through 'Utilising the Delphi Technique when making major decisions'.

Given the importance to Latvian and other Baltic ports of transit cargoes, rail and transport connectivity was covered next, especially given the impact the conflict in Ukraine has had.

Vladislavs Jakovļevs, CEO of Riga Bulk Terminal – where our sponsor

Bedeschi had an installation, which I visited after the conference – spoke on 'Current operational issues in the present climate'. It was particularly relevant in the current situation, in view of the ongoing effects of covid-19 and the loss of transshipment cargoes from Eastern Europe for Latvian and other Baltic ports.

This led conveniently on to the next presentation, from Kristīne Malnača, strategic planning and economics team leader at Rail Baltica. Her presentation on 'Rail connectivity' dealt with the new lines connecting the Baltic with Poland and the rest of Europe on the standard European gauge, as opposed to the old Soviet-era Russian width.

In June, Lithuania, implementing sanctions imposed by the EU, had banned the transit of coal, metals, construction materials and advanced technology through its territory from Russia to the Kaliningrad enclave by rail – although this was subsequently reversed.

Similarly, China's dispute with Lithuania has regional and EU implications. China – as we know from its issues with Australia – is prepared to use its massive clout when it comes to trade and commodities in pursuance of political objectives. It also banned the export of sand to Taiwan earlier this year.

Beijing has denied ordering a trade boycott, but the European Commission says it has evidence that China is refusing to clear Lithuanian goods through customs, rejecting import applications and pressuring EU companies to remove Lithuanian inputs from their supply chains. In January, the EU launched a case at the World Trade Organisation, which could take some time to resolve.

Time will tell what outcome of the war in Ukraine and trade disputes with China will be. The regional and international fallout of these issues were aired in the closing session of the day in the conference panel debate: 'Conflict and the effect of the pursuit of political objectives on bulk trades – international, regional and EU implications'. This session was moderated by Ansis Zeltiņš. The Ambassador of Ukraine to the Republic of Latvia, Olexandr Mishchenko, delivered a powerful speech that received a standing ovation. He was followed by Mindaugas Stanys, first secretary/DHM at the Embassy of the Republic of Lithuania to the Republic of Latvia.

The evening session was hosted by the Freeport of Riga Authority. A tour on foot of historic Riga was followed by a splendid reception at the magnificent Museum of History and Navigation.

Day two started with two excellent and thought-provoking presentations from Nick Chubb, managing director, Thetius, in the Digitalisation and Cyber Threat session: 'What are the challenges and understanding where digitalisation can improve performance'? and 'Identifying where the risks come from and managing the risks'

Next 'Safety first'– never far from our concerns in an all too dangerous industry – were covered by Richard Steele, head of ICHCA International – with whom ABTO has a memorandum of understanding – and 'Risk issues' by Julien Horn, senior underwriter at sponsors the TT Club.

The Environmental session's discussion on hydrogen was followed by 'Monitoring emissions' from Raphael Picard, VP sales EMEA at Ellona. The final session was 'Retrofit of the existing power supply – achieving energy savings through electrification' by Malte Moeller, project manager at igus GmbH, another of our sponsors, which has supported Bulk Terminals since our first event in 2017.

The afternoon was taken up with boat tour of Riga Harbour and lunch on board, kindly hosted by the Freeport of Riga Authority, followed by a visit to the Port Vessel Traffic Services Centre. A visit to Riga Universal Terminal rounded off a highly successful two days.

FUTURE PLANS

As well as terminals and ports, we welcome equipment and service suppliers, professional advisors and academics to the conference. Indeed, ABTO feels strongly that it is only through the interaction with these others that bulk terminals will achieve increased operational efficiencies, together with safety and environmental compliance. It follows that sponsors and exhibitors with a positive message on safety, efficiency or the environment are very welcome on the conference programme.

Although Bulk Terminals is a conference, rather than exhibition-led event, without the support of our sponsors and exhibitors it would be difficult to hold it. Therefore, a big thanks to our regular sponsors: Bedeschi, BRUKS Siwertell and igus (and on this occasion its local agents Techvitas), as well as a warm welcome to our new supporters RAM Spreaders and the TT Club. Thanks also to Rīgas Brīvostas Padome and the Marine Services Group for their help promoting the conference.

Finally, one of the benefits of meeting in person is what spins off from the networking. We had four delegates who are either practising lawyers or studying law who are keen to form an ABTO Legal Committee. They are barrister Mark Hoyle PhD of ArbDB Chambers at the International Dispute Resolution Centre; Chilian lawyer Ricardo Gebauer, who advises Puerto Panul; law graduate Raphael Picard, studying for his Masters and taking the French Bar exams next year and Rahul Sharan, who is taking his LLB in 2023. Good luck to Raphael and Rahul for success in their exams.

Our next events are two short courses next year in association with the Wolfson Centre: 'Port and Terminal Operations for Bulk Cargoes' in March and 'Biomass Operations and Handling Technologies' in April. To register an interest in attending any of ABTO's short training courses, please contact events@bulkterminals.org or call the number below.

Keep an eye on the Events section of our website for developments and registration details.

Enjoy our autumn edition of *Bulk Terminals International*. Keep in touch and stay safe.

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WORLD NEWS ROUND-UP

There are challenges ahead in the industry, but new initiatives and partnerships are paving the way ahead

CHALLENGING TIMES

Today's reality has given everyone new tasks and challenges, Elina Luca, head of department, Transport Logistics and International Cooperation Coordination Department at the Latvian Ministry of Transport told delegates ABTO's recent Bulk Terminals conference in Riga.

What was once strong and connected is now weak and unstable, she warned. Global changes need fast reactions to adapt to the new world. Connection alternatives should blend in without losing existing transport flows .

The cargo system is being developed to offer alternatives for cargo handling in Europe and Asia, she told delegates. Attracting cargoes from new markets in Africa and Asia has become a reality.

In the current geo- political situation, Europe needs new sources for energy resources, including coal cargoes for the Baltic Sea region, she said. Latvian ports are well prepared for this and there is cargo capacity in all its major ports. More coal cargoes are coming in from central Asia, although the sanctions on coal from Russia have had a significant impact.

Lately, authorities have been working on new logistic routes to get around the problems and to support Ukraine's agricultural products. The lack of alternative transport corridors to seaports in the EU has been a challenge. Latvian ports have the ability to store grain and test shipments from Ukraine have already taken place.

The bulk sector has lots of opportunities and potential to grow, Luca said, and this is the right time for development. "Our port bulk terminals can offer cargo facilitation of distribution using different transport modes." This is already happening, she explained, for example coal from Kazakstan is coming not only by road but also rail.

Rail connections need to be improved, she said, and work is underway on digitalisation, new technologies in ports and logistics. A number of new technologies are being tested at ports, including underwater drones, for example and many projects are underway to improve efficiency.

Transport and logistics is developing hand in hand with global trade and challenges and Latvia has a good deal of expertise to share and is ready to share it, she said.

Viesturs Zeps, chairman of the board of the Free Port of Riga authority told the conference that the war in Ukraine haf been very challenging for everyone, following on from the pandemic. This year has been the "new, new normal", he said.

At the start of the war in Ukraine, the authorities estimated that the effect on terminals and Riga port, and on the economy. A 35-44% decrease of turnover was projected, but currently with logistic changes, numbers at the port have been growing and companies have been adapting very quickly to the changed circumstances.

Innovation has been a key part of Zeps' job in Riga, including digitalisation and the increasing use of autonomous vehicles in Riga Freeport, including drones with sensors, for example, as well as development of new technologies and collaboration with regional countries. The port has also been investing in new technologies as part of the 'green deal', including solar panels. Next steps include investment in hydrogen.

Ansis Zeltins, chief executive of Freeport of Riga Authority, says for Riga and ports around the Baltic there have been a number of challenges in the past five years, notably energy efficiency and emissions reduction, which continue to be issues, but which also provide opportunities.

Another challenge has, of course, been the pandemic which transformed manufacturing and production activities; shipments and logistics chains could no longer rely on just in time shipments.

The war in Ukraine also changed all the strategies and logistical principles in place before. Changes affected not only ports and terminals, but all the different transport chains in different countries in Europe and Asia, for example.

There are opportunities arising from this. In Riga, after the war started there was a shock and no clear vision for the future, but as time passed new opportunities arose and there are some logistic chains operating now that were never possible in the past, he told delegate.

See more commentary from the Riga conference on pages 29.

BELOW THE WATERLINE

The global maritime industry is making significant progress in the fight to reduce greenhouse gases and other ship-to-air emissions, but it should not lose sight of what's going on below the waterline, Thordon Bearings' Craig Carter said recently, addressing members of the World Ocean Council (WOC).

Speaking in Barcelona on the first day of the WOC's Sustainable Ocean Summit, Thordon's vice-president of business development said: "There are today a number of initiatives looking at reducing emissions above the waterline, but not so many looking at preventing pollution below the waterline. This can be part of global policies to improve our oceans and seas under the United Nations' Sustainable Development Goals, Number 14 – Life Below Water."

In answer to a question raised during the Sustainable Ports and Shipping for the Blue Economy session, Carter said: "To further advance ocean sustainable development and put to sea truly zero-emissions ships, then we really do have to get rid of the oil-lubricated shaft line and replace it with one lubricated by seawater. From well to wake, the environmental impact of an oil-lubricated sterntube needs serious consideration."

According to numerous environment data sources, Carter estimated conservatively that leaks from the global shipping fleet's propeller shafts resulted last year in more than 60m gallons of oil polluting the world's seas and oceans.

"This is about the same as the *Amoco Cadiz* spill, but it's happening year after year after year, he said. "Oil-lubricated propeller shafts are often considered to be sealed systems, but they're not. If they were, then a ship's oil header tank containing 2000-3000 litres of oil wouldn't need topping up with oil every few years."

Carter went on to explain that the advancements made in elastomeric polymer materials over the past decade not only offer a viable environmental and economic alternative to the oil-based system, but seawater-lubricated shaft lines can also figure in the shipping industry's CO_2 emissions abatement plans.

"Initial research suggests that because a seawater-lubricated propeller shaft system operates with lower friction coefficient (resistance) compared with one operating oil-lubricated white

metal bearings, less fuel is required to propel the vessel, resulting in a small but nonetheless important reduction in carbon emissions.

"This means it can form part of a ship manager's Carbon Intensity Indicator measures, which becomes mandatory next year under MARPOL Annex VI."

ENERGY GUIDANCE

A Practical Guide to the Selection of Energy Efficiency Technologies for Ships has been published by the Global Industry Alliance to support low-carbon shipping (low carbon GIA) under the International Maritime Organization-Norway GreenVoyage2050 Project.

Together with its accompanying Excel tool, the guide aims to support shipowners looking into retrofits, with helpful guidance on considerations and operational practices that should be taken into account when selecting relevant technologies.

"Transparency of performance is a key barrier to the uptake of Energy Efficiency Technologies (EETs) for ships . We hope that the publication of this guide and its accompanying tool, will support shipowners and operators, particularly those with limited in-house technical departments, to assess the energy saving potential of EETs and enable a more informed comparison between different technologies," says David Connolly, chief technologist at Silverstream Technologies and chair of the Low Carbon GIA Energy Efficiency Technologies and Operational Best Practices workstream.

The guide provides a simple yet flexible methodology for shortlisting technologies, based on a set of eight evaluation criteria – similarity, plausibility, accuracy, overall and specific volume of orders, repeat orders, consistency and compatibility.

The methodology and the associated Excel-based high-level assessment tool are designed to be user-friendly, and do not require specialist technical knowledge, using a 'traffic light' scoring system to help in narrowing down and ranking the available choices according to the level of confidence that shipowners may have in the ability of a given technology to deliver on the vendor's performance claims.

The guide is primarily aimed at shipowners and ship operators. Equipment suppliers and technology providers may also find the methodology and high-level assessment tool useful, in order to increase confidence in their performance claims.

It is designed to provide users seeking to improve the energy efficiency of their ships with helpful guidance on considerations and operational practices that should be taken into account when selecting relevant technologies.

It offers a simple yet flexible methodology for shortlisting the technologies and manufacturers that are most likely to be able to deliver on their savings and performance claims.

NEW LAW FOR CYPRUS

The Cyprus Shipping Deputy Ministry (SDM) has enacted the Shipping Limited Liability Company (SLLC) Law of 2022, which was ratified by Cyprus Parliament on 6 October 2022.

The new legislation aims to simplify the procedures and operating regime of Cypriot shipping companies that own Cyprus ships, while safeguarding the competitiveness of the Cyprus flag in international shipping.

In 2021, the SDM launched SEAChange 2030 – a long-term strategic vision for shipping which is designed to compound Cyprus' influential role in leading positive change for global shipping and maintain the country's status as a leading maritime hub.

In line with the strategy, the establishment of this entity fulfils Action 14 of the strategy, which falls under the 'sustainable' pillar of the initiative. This initiative reflects the SDM's commitment to providing a responsive, fast, efficient, and seamless customer-orientated service.

To this end, the legislation aims to create a new type of corporate entity called a 'Shipping Limited Liability Company' (SLLC), which will be established as a limited liability company with the sole purpose of owning and operating Cypriot ships.

The law will regulate issues relating to SLLCs – from their establishment, to liquidation.

Commenting on the new legislation, Vassilios Demetriades, Cyprus Shipping deputy minister, says: "The Cyprus Shipping deputy ministry is continuously improving the effective, efficient, and quality service it provides to the maritime industry. This legislation marks a watershed moment in the ministry's ongoing efforts to maintain the sustainability of Cypriot shipping, and the fulfilment of a key commitment made in our SEAChange 2030 strategy.

"It is an important step in the formulation of a one-stop shipping shop, provided by the Cyprus Shipping deputy ministry. Through this initiative, we are recognising what the industry expects from a model, efficient, and responsive maritime administration.

"This reflects the ministry's continued provision of the efficient service and simplified procedures that the shipping industry has come to expect. Cyprus has a strong maritime infrastructure, and it is crucial that we continue to evolve and adapt to enable positive progress in this rapidly changing industry."

CARDIFF DEVELOPMENT

The Port of Cardiff, owned by Associated British Ports (ABP), has completed a long-term lease of a 95,207 sq ft distribution centre with Owens Group.

This new partnership with Owens Group will attract investment and around 80 jobs to the region. It is an example of how ABP's unique network of ports in South Wales can offer the right facilities to enable business growth and drive increases in operational efficiency.

Ian Owen, managing director, Owens Group, says: "This is another exciting development during our 50th years of business. This new super site is ideally located at the Port of Cardiff and will assist long-term deals agreed with key blue chip customers, further securing and enhancing our company brand and customer service offering."

With direct links to the national rail network, easy access to the M4 motorway and direct sea access, the Port of Cardiff provides multimodal facilities

and easy access to the nearby urban conurbations and Cardiff city centre.

Helen Thomas, ABP head of property, Wales and Short Sea Ports, says: "We are delighted to have completed one of the largest industrial lettings deals in Cardiff over the past 12 months within such a swift timeframe and look forward to supporting Owens Group's business growth going forward.

"ABP is known as the leading ports group in the UK with a network of 21 ports across Britain, but we are more than this – we also deliver commercial property solutions for manufacturers and supply chain businesses locally, nationally and globally."

RISING INSURANCE PREMIUMS

The International Union of Marine Insurance (IUMI) reports an increase in the 2021 cargo insurance premium base (from 2020) of 8% to US$18.9bn alongside an improvement in overall loss ratios.

Speaking at this year's Chicago conference, Isabelle Therrien, chairperson of the IUMI Cargo Committee, said: "The cargo market has shown growth in 2021 partly due to a rise in the volume of cargo shipped globally combined with the pricing corrective measure still prevalent in that underwriting year.

"The much-needed correction has yielded favourable underwriting performance. However, the industry is still facing headwinds as the global supply chain remains volatile and is still dealing with the aftershock of the pandemic while now adding inflationary pressures to the mix."

Cargo premiums increased in most markets, with China leading the growth in 2021. China now accounts for 14% of the cargo market, with the UK (Lloyd's of London and the International Underwriting Association) having a 12.2% market share. With 2021 claims starting at a low level due to subdued activity in 2020, loss ratios continue to improve in all markets.

Therrien noted that companies are redesigning and diversifying their supply chains with concepts such as near-shoring, reshoring and friendly-shoring gaining in traction. These developments have the potential to change risk profiles in cargo insurers' portfolios.

"The pandemic has shown that factors such as stability and reliability when it comes to supply chains, are key to product availability. Our assureds are now also looking at different logistics, transportation and insurance solutions to manage this constantly evolving risk."

BULK COMMODITY ANALYSIS

DBX, a new dry bulk commodity analytics firm based in London – which officially launched earlier this year having successfully completed Signal Venture's incubation programme – has now initiated a round of seed funding.

DBX uses satellite technology and artificial intelligence (AI) to fuse multiple data sources and provide real-time insights into coal, iron ore, bauxite and alumina supply and demand. Customers include commodity producers and traders, banks, hedge funds, steel mills and power utilities.

DBX chief executive Alexandre Claude says: "Progress at DBX

has been fast and we are now adding metals, further minerals and grains onto our platform. We have developed a unique product for a hitherto opaque market. By combining vessel movements and cargo tracking with customs data, satellite observations of commodity stockpiles and cleaning and refining unstructured third party data, we are opening up trading opportunities and increasing supply chain efficiency."

DBX's progress has been accelerated by its partnership with Signal Ventures, the strategic investment arm of the Signal Group, a leading provider of technology, data and commercial solutions to the shipping industry.

Signal Venture's VP, Nikolas Pyrgiotis, comments: "We are delighted to see another company successfully launch out of our incubator programme. I'm proud to see the Signal team help take DBX to the next level. It can often be a struggle for early stage start-ups to recruit data scientists and programmers, but as an established organisation with an ecosystem of shipping and maritime trade related platforms, we are able to offer interesting and varied opportunities to some of the brightest and best brains in the market."

OilX, a UK based oil analytics company, is also a product of the Signal Ventures incubator programme and has been involved with the development of DBX from the outset.

OilX CEO Florian Thaler says: "The solutions which DBX is bringing to the dry bulk space are similar to those provided by OilX for oil markets. Data related to the movement and supply of dry and wet commodities are generally very choppy and hard to collect, and analysts using the data suffer from time lags."

IMPROVING VISIBILITY

Innovez One, a provider of digital solutions for port management, and Aventra Group, a maritime IT boutique specialising in advanced analytics and data solutions, have signed a strategic partnership to develop an advanced and innovative analytics dashboard that will enhance digital Port Management Information Systems (PMIS), giving ports better visibility on their operations and supporting strategic decision-making.

The joint platform, Port Management Insights (PMIn-sightsTM), will use historical and real-time data (from sensor-based IoT technology) to improve the operational efficiency of port, towage and pilotage operations, building on both companies' expertise with machine learning automation and artificial intelligence.

An analytics dashboard will integrate data from several sources and applications, facilitating data sharing and enabling managers to see all information in one place.

STATE-OF-THE-ART SYSTEM

Korean Register (KR) and Daewoo Shipbuilding and Marine Engineering (DSME) will be developing a new 40,000 m^3 liquefied CO_2 carrier featuring a next-generation cargo handling system.

The two Korean firms signed an memorandum of understanding at Gastech 2022 in Italy in September, to help meet the growing demand for vessels capable of transporting carbon dioxide at scale from emissions sources to storage sites.

Carbon capture, utilization and storage (CCUS) technologies are fast growing as the world seeks to achieve carbon neutrality and build an international carbon capture infrastructure.

However, CO_2 is a complex cargo to handle, having a triple point that is higher than atmospheric pressure, meaning that it can liquefy only at low temperatures and high pressures. Even a small environmental change can see CO_2 transform into a gas, liquid or solid state.

The new design will feature a reliable ship and cargo containment system using its accumulated technologies in the field of liquefied gas carriers, such as liquefied natural gas and liquefied petroleum gas carriers.

DSME will also develop a cargo handling system using the latest technology to prevent CO_2 emissions and ensure navigational stability.

KR has also given approval in principle for the design of a new ammonia-fuel ready vessel. The very large gas carrier (VLGC) will be capable of using ammonia as a fuel as well as carrying it as bulk cargo.

Jointly developed by Samsung Heavy Industries (SHI) and KR, the new design represents a significant step forward in the expansion of an international supply chain for the clean fuel.

Ammonia is a stable, cost-effective and clean energy source, but can cause stress corrosion cracking in carbon manganese steel or nickel steel. To minimisze these risks, management of the tensile stress and corrosive environment of the steel is essential.

KYU-JIN YEON, HEAD OF KR'S PLAN APPROVAL CENTRE (LEFT) AND JUN-LYOUNG SEO, CTO OF DSME AT THE MOU SIGNING CEREMONY

The SHI design maintains the actual yield stress of the ammonia tank steel below KR's Rule requirements and is able to maintain a temperature close to boiling point.

Kyu-jin Yeon, head of KR's Plan Approval Center, says:"We are committed to supporting the responsible use of ammonia in a sustainable energy economy: ammonia is an important green energy source and is expected to account for a significant proportion of future ship fuel demand.

"However, while the shipping industry has significant experience of carrying ammonia as a bulk cargo, using it as a fuel brings new challenges and fuel systems must be designed, manufactured, operated and maintained in a way which ensures the safety of the ship crews, port staff and fuel suppliers.

"KR will continue to co-operate with SHI to develop further green technologies and become a leader in this field."

Young-kyu Ahn, head of SHI's Shipbuilding Sales Engineering Team, adds:"Ammonia fuel propulsion vessels are one of the best ways of meeting the International Mritime Organization's carbon neutral targets, and we plan to commercialize them with differentiated technology.

"Moreover, our Research Institute is spurring the development of green technologies such as carbon reduction and hydrogen transport technology."

INTEGRATED SOLUTIONS

Norwegian shipping company Høglund Marine Solutions will deliver a complete integrated solution featuring automation and power management, hybrid-electric, digital and fuel gas supply systems to power four newbuild vessels for Utkilen, the Norway-based chemical tankers operator.

The vessels will be built at Icdas in Turkey, and delivered from 2024 onwards.

Each ship, set to operate in the Baltics and the North Sea, will have state-of-the-art multifuel engines, optimised hull shape and battery and shore power connections as part of Utkilen's strategy to meet ambitious decarbonisation goals.

The hybrid-electric components for the vessels are being developed by Høglund and Can Makina, the Turkey-based maritime engineering and manufacturing company.

The components for the vessels will be integrated with Hoglund's power management and electrical systems.

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 30m³ 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.

With grabs to handle bulk, logs, scrap, underwater dredging and more, please don't hesitate to contact us to talk through your needs.

MRS GREIFER

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74921 Helmstadt
Tel: +49 7263 9129-15
Fax: +49 7263 9129-12
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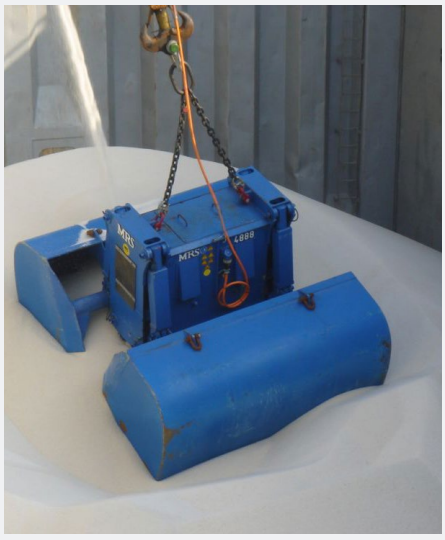


BESPOKE SERVICES

Customising machinery for use in specialised situations is nothing new to the bulk cargo industry and made-to-measure systems are often used to ensure the best and most economical performance

Napier Port's senior crane operators have successfully loaded logs on to the Norse Mobile bulk cargo vessel using log grabs custom-designed and built for use on the port's existing mobile harbour cranes.

Napier Port chief executive Todd Dawson was on board the Norse Mobile to observe the initial operational trial and was very pleased to watch this new infrastructure in action.

Dawson says: "Our new log grabs are a significant safety improvement for log loading operations on port and are set to enable operational efficiencies with an increased throughput of logs. Not only is it a boost in productivity for vessels calling into Napier, loading logs on to charter vessels also represents a new service offering and revenue stream to Napier Port.

"Alongside our new log-debarking facility, and other infrastructure projects in the pipeline, we are continuing to develop and invest in efficient cargo solutions for our customers and create greater value right across our operations."

The port's bulk cargo and crane teams have worked closely with Page Macrae Engineering over the past 18 months to develop the prototype log grabs to suit the specific operational requirements at Napier Port. Introducing log grab infrastructure to port operations reduces the need to rely on a ship's own smaller cranes to load logs and will also allow Napier to welcome log vessels that don't have cranes at all.

"Over the past few months, we've also worked collaboratively with our stevedoring tenant C3 to develop, plan and carry out this trial. From an operational stand-point the feedback on the ground has been fantastic and we're excited to fine-tune this new operation going forward," says Dawson.

HISTORIC DELIVERY

Lekki Deep Sea Port has taken delivery of three super post-panamax ships-to-shore (STS) cranes and 10 rubber-tyred gantries (RTGs), which will be used at the container terminal. The box terminal will be operated by Lekki Freeport Terminal, a subsidiary of the CMA CGM Group.

The cranes arrived at the Nigerian port with the vessel *Zhen Hua 28* from China.

Du Ruogang, managing director of Lekki Port, explains that the highly sophisticated port equipment will be used for the first time in Nigeria at Lekki Port, thus putting Nigeria at the forefront of container operations in West Africa and on the global maritime map.

"This is the first batch of our port machinery; we will then mobilise the second batch of two STS and five RTGs. By the time of the formal commencement of the port operations, there will be five STS and 15 RTGs in place," Ruogang says.

Managing director of the Nigerian Ports Authority Mohammed Bello-Koko describes the arrival of the cranes as "historic".

BOSTON UPGRADE

The Massachusetts Port Authority (Massport) has recently announced the completion of critical infrastructure investments at the Paul W Conley Terminal as part of a nearly $850m plan to upgrade the Port of Boston.

The completed projects include three fully electric ship-to-shore cranes that produce no diesel emissions, to serve ships carrying up to 14,000 TEUs, alongside new rubber-tyre gantry cranes and a new 15m-deep berth to accommodate the new cranes and larger ships.

Other terminal improvements include expanded container storage and new refrigerated container racks.

Among the port's ongoing

infrastructure projects are power retrofits to existing rubber-tyred gantry cranes to increase the overall operational efficiency of the terminal and reduce emissions.

"Supporting these critical infrastructure projects at Conley Container Terminal is crucial to Massachusetts and New England's competitiveness in the global marketplace," says Massachusetts governor Charlie Baker. "I am thankful for the collaborative efforts of our federal and state partners and Massport to help protect the thousands of local jobs throughout the Commonwealth [of Massachusetts] and the future growth of the port."

Prior to the Port's modernisation, Conley offered two services reaching seven major global ports. With the completion of the infrastructure investments, it now offers direct connectivity to China, north Europe, south-east Asia including Vietnam and India, the Mediterranean, Middle East and Latin America through five services, with a sixth service that is scheduled to start in this month. Conley now has direct connectivity to 25 global ports.

"With a deeper Boston harbour and modern container facilities, the Port of Boston is providing greater global connections for Massachusetts businesses and supporting thousands of jobs," says Massport CEO Lisa Wieland. "None of these infrastructure improvements would have been possible without the leadership and support of our federal, state, and local elected officials and the business community."

The Port of Boston generates $8.2bn in annual economic impact and supports more than 66,000 jobs. As the only full-service container terminal in New England, Conley Terminal enables more than 2,500 businesses throughout the Commonwealth of Massachusetts and New England to ship and receive products globally.

"The Port of Boston is a vital gateway connecting the global marketplace with businesses across Massachusetts and New England," says Boston Mayor Michelle Wu. "The expansion and modernisation of this terminal mirrors our city's commitment to support and invest in the local economy, contributing to the sustainable growth of local jobs and businesses."

The news at Boston comes at a time when the global container throughput is continuing to show signs of recovery compared with 2021 levels, according to recent data from Drewry.

The Drewry Global Container Port Throughput Index dropped 2.1% month-on-month in July 2022, but was 3.3% higher year-on-year.

ELECTRICAL HAZARDS

Industry players have voiced concerns over draft new European machinery rules that specify mobile machinery needs to be designed to avoid contact with overhead power lines for safety purposes. The concern is that such rules would be difficult to implement effectively. The proposed regulations are designed to update the 2006 Machinery Directive and ensure flexibility of equipment movement throughout the EU.

Concerns specifically centre on wording contained in the proposed new regulations, which are designed to prevent electrical hazards resulting from accidental contact with a live power line, and market players suggest that all hazards cannot be prevented and potential solutions to the problem might create further risks during operation.

Implementation of the new rules as they stand may also lead to blockage in production or import of new cranes and mobile machinery that did not meet the requirement, which, it is suggested, would be impossible to implement as currently drafted.

Ton Klijn, director at the European Association of Abnormal Road Transport and Mobile Cranes (ESTA) says: "This proposal is clearly absurd and completely unworkable. What is disappointing is that this problem could have easily been averted if only the relevant authorities had properly consulted the industry in the first place, something that would have saved a lot of time and trouble."

KONECRANES SCOOPS AWARDS

The Information Technology for European Advancement (ITEA), part of the Europe-wide research and development initiative Eureka, has awarded the Konecranes-led research project Optimum with a Special Award of Excellence in all three nomination categories: innovation, standardisation and market impact – marking an exceptional achievement in the history of the awards.

Focusing on engineering, commissioning and distributed control combined with human-machine interaction, the Optimum research project paves the way for smart factories.

Launched in 2017, the project aims for greater efficiency, data security and usability in future smart factories. Seventeen consortium partners from six countries were involved in the project, led by Konecranes' Demag Cranes and Components.

Optimum enables smart factory applications, based on indoor localisation, distributed controls, 3D-engineering for visualisation/ simulation and real-time machine-to-machine and machine-to-human communication, as well as innovative assistance functions.

The innovative assistance functions developed in Optimum create the potential for cost-efficient and convenient assistance functions that are revolutionising the efficiency of processes at factories.

The project consortium has implemented and validated the numerous technical artefacts and results in 15 demonstrations in four countries. Cranes, robots and autonomous driving vehicles were equipped with new assistance functions, such as ordering the machines to come to the operator or to go to a specified spot, as well as having a machine follow another. These functions can reduce assembly times in semi-autonomous processes, supporting more efficient resource utilisation.

Optimum achieved further successes in standardisation. The project partners actively drove the development of a global uniform open platform

communication unified architecture specification for cranes and hoists, which was evaluated as part of the project.

"The outcome of this project exceeded our expectations by far," says project lead Anja Fischer at Demag, part of Konecranes group. "The findings list eight patent ideas, and national patent approvals have already been provided for three of them. In addition, a total of 12 new full-time jobs were created and 43 university papers were successfully completed by the consortium partners involved in the project.

"Above all, however, we have discovered ways to improve the competitiveness of the relevant industries even further.

"Technological leadership is at the core of Konecranes' operations, allowing the development of solutions for continuously evolving customer demands, and driving our positive societal impact. Our innovations create customer value and contribute to making material flows more sustainable, efficient and safer. The work is conducted independently, with start-up partners and through projects such as Optimum."

Houston hybrids

Konecranes has also received a new order with Port Houston in Texas. The port has ordered 14 hybrid Konecranes rubber-tyred gantries (RTGs) for its Barbours Cut Container Terminal and 12 hybrid Konecranes RTGs for its Bayport Container Terminal. The order supports the port's expansion as it gets ready to receive larger container ships and higher volumes of container traffic.

The order was booked in Q3 2022. The crane deliveries will start in the last half of 2023 and continue to mid-2024.

Port Houston is expanding significantly with a channel improvement programme and land infrastructure investment. Container volumes grew a record 15% in 2021, year over year and as part of its investment programme.

The port has ordered 2the RTGs to reinforce its current fleet of Konecranes RTGs at its Barbours Cut and Bayport container terminals. Across the two terminals, the current fleet comprises 90 diesel Konecranes RTGs and 26 hybrid Konecranes RTGs.

The hybrid Konecranes RTGs on order feature advanced Li-ion battery technology and a battery management system that monitors the charge level and general health of the batteries. Konecranes can monitor the status of this system via Truconnect remote connection. The hybrid power system is completely modular and retrofittable and includes an eco-efficient Tier 4f diesel engine that will charge the batteries when necessary.

"Port Houston is forging ahead in both productivity and container crane eco-efficiency," says Jussi Suhonen, VP regional sales, port solutions, Konecranes. "Hybrid Konecranes RTGs have a proven track record, and this new order from Port Houston exemplifies this."

The RTGs will have a lifting capacity of 50 tons, while stacking containers 1-over-5 high and six-plus truck lane wide. They will be equipped with the active load control system, which eliminates container sway. They also have smart features including auto-steering, stack collision prevention and truck lift prevention.

Italian job

Meanwhile, TDG, Terminal Del Golfo, part of Tarros Group, has ordered an eco-efficient Generation 6 Konecranes Gottwald Mobile Harbor Crane for their operation in La Spezia, in northwestern Italy.

The crane represents the latest in mobile harbour crane technology and will be equipped with an external power supply that lowers operating costs while reducing noise and exhaust emissions. The order was booked in July 2022 and the crane will be delivered in the first quarter of 2023.

The new Generation 6 crane will increase capacity and improve flexibility at the container and multipurpose terminal. It can handle containers, general cargo and heavy project cargo, and its external power supply will raise both operational performance and reduce local carbon emissions.

When unplugged, the crane uses a hybrid drive, consisting of an EU Stage V diesel engine paired with ultracapacitors refilled by lowering and braking energy.

"We are excited to utilise the latest eco-efficient mobile harbour crane technology to support our terminal enlargement project in La Spezia," says Andrea Natale, terminal manager at TDG. "We were convinced by the combination of productivity, flexibility and eco-efficiency that the Generation 6 offers."

The crane is TDG's first Generation 6 mobile harbour crane. The decision to purchase one was supported by Konecranes' MHC Product Advisor, a virtual tool that helps operators find the right mobile harbour crane.

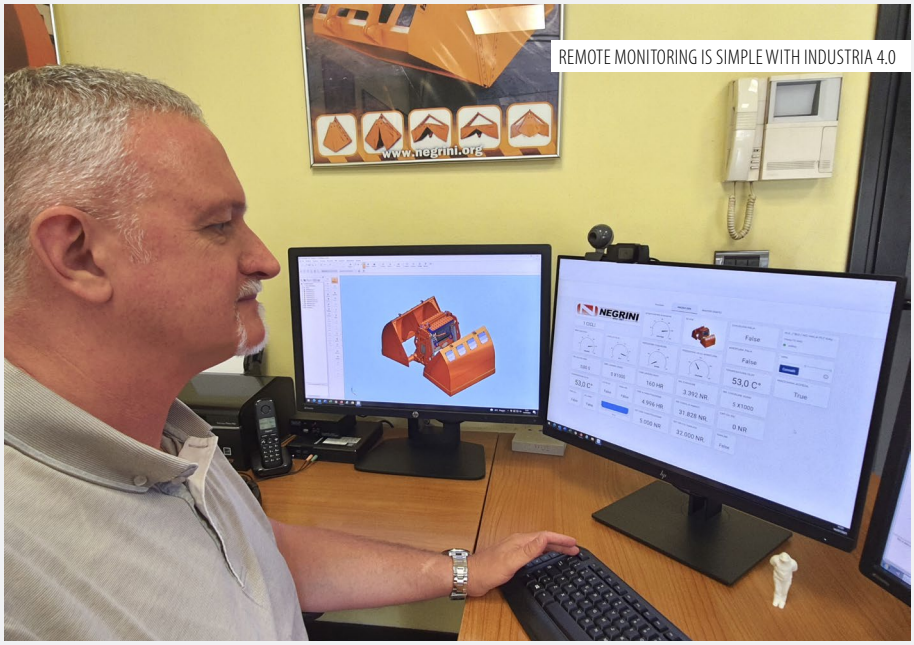
The crane will have smart features such as automatic lubrication to reduce maintenance work, an emergency ladder on the tower wall for added safety, and digital services that streamline operation in line with Italy's National Industry 4.0 Plan, a state strategy that encourages industrial innovation.

"This order underlines the strengths of the Generation 6 crane, with its high productivity, reliability and eco-efficiency, and we are proud to support TDG in their terminal expansion" says Gino Gherri, regional sales manager, port solutions at Konecranes.

NEGRINI: ADDING REMOTE ASSETS

COMPANY NEWS

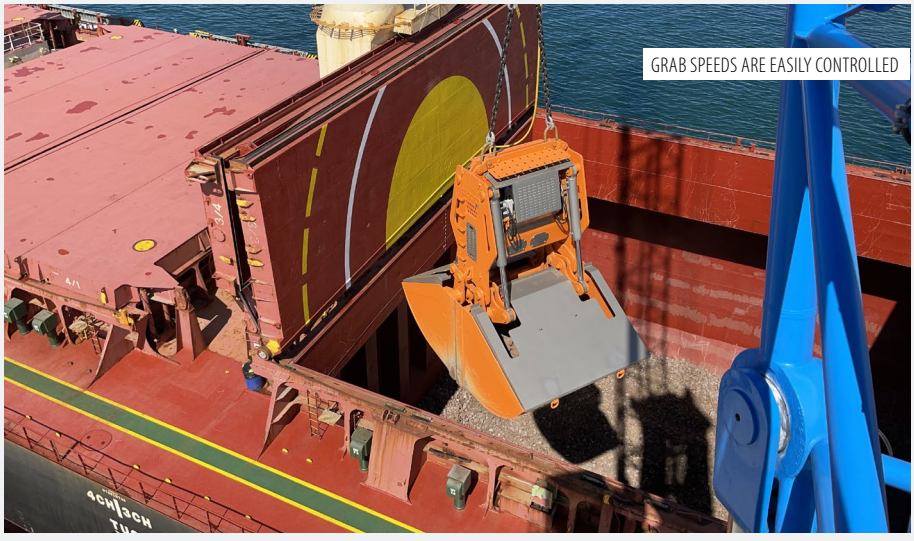
Negrini has introduced a new tool to further enhance its extensive range of electro hydraulic grabs. Remote Control Industria 4.0 is ideal for routine maintenance, as well as to improve the efficiency and operation of customers' production processes.



REMOTE MONITORING IS SIMPLE WITH INDUSTRIA 4.0

STATE-OF-THE-ART FEATURES

- Monitoring and control of processes in electro-hydraulic equipment
- Real-time scans and diagnostics
- System communication via wi-fi or data sim
- Notifications via email, sms or smartphone, tablet and PC
- Preliminary production analysis
- Routine maintenance alert
- Failure prediction
- Immediate alarm in case of failure or malfunction


GRAB SPEEDS ARE EASILY CONTROLLED

THE SMART GRAB

With Remote Control Industria 4.0 installed, the grab parameters automatically adapt to the type of material being handled without the need for human intervention, therefore maximising production and reducing costs.

In the presence of high-density materials such as mineral, the grab speed is reduced and the hydraulic pressure is increased – parameters that are not suited to lighter materials such as coal or cereals, where we see a change in speed

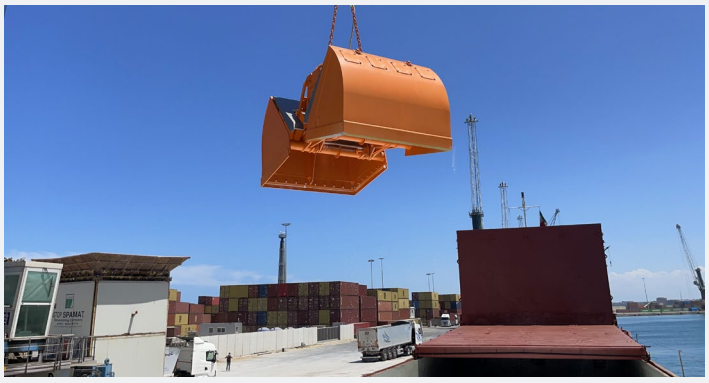
and reduction in hydraulic pressure – thereby reducing energy wastage and wear.

The most important advantage offered by the Remote Control Industria 4.0 device installed on Negrini's equipment concerns the processing of data, thus allowing preliminary production analysis and failure prediction. Notifications are sent via email and sms and each time an event occurs, either an incident, arrest or maintenance request is recorded.

Costly machine downtime is therefore avoided while maximis ing production, reducing periods of non-activity and minimising expenses normally incurred by corrective maintenance works. The client and Negrini Srl have total control over the condition of the equipment via wi-fi or a data sim, using a smartphone, tablet or PC, and will receive all notifications sent by the system so as to always be informed of machine requests and events.

For more information, visit negrini.org

NEGRINI since 1967 S.R.L.



LESSENING THE LOAD

Technology has a major role to play in boosting efficiency at port terminals and investments have been underway to underline this

The port of Veracruz in east-central Mexico is being developed into one of the most advanced port terminals in the world. Accessing global waters via the Gulf of Mexico gateway, the port is undergoing a US$5bn redevelopment project, which will quadruple its installed capacity to reach more than 90m metric tons by 2030. Part of this development is five new terminals and a new cargo processing and logistics area.

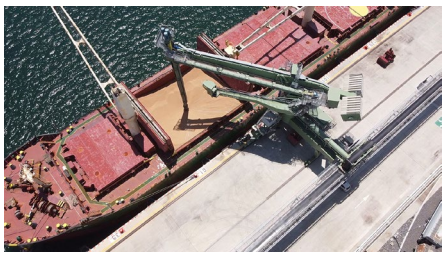
Integral to this development is Grupo Gramosa's Puertos Especializados Transnacionales (PETRA) new agri-bulk terminal. It was planned, designed and built for the specialised handling of solid, liquid and semi-liquid agricultural bulk, with a storage capacity of 126,000 metric tons of dry bulk and 38,400 metric tons of liquids.

PETRA is now operational and from the outset, its dry bulk import facility has been able to offer unmatched grain handling and environmental protection. Underpinning these exceptional capabilities is a single rail-mounted Siwertell ST 640-M ship unloader.

It has a continuous rated capacity of 1,200t/h and a peak one of 1,320t/h, discharging vessels up to 80,000 dwt. The unloader's seamless flexibility enables it to handle a number of different grains such as corn, soya meal, dried distillers grains and canola seeds without any loss of efficiency.

"Gramosa Group invested US$85m in the PETRA terminal as it saw an opportunity to reduce the cost of raw materials for an animal-feed facility, achieved by getting more materials into the plant at a lower cost due to greater efficiency," explains Jesus Mil Linares, terminal general manager, Grupo Gramosa.

Talking about its new Siwertell unloader, Linares could not speak more highly. "The unloader minimises terminal operating costs. In addition, there are close-to-zero dust emissions, no disturbing noises, and no spillage," he notes. "This means no cargo losses, which is particularly important when it comes to expensive commodities such as corn, which is currently priced in the region of USD 350 per metric ton and DDGs at USD 650 per metric ton.



"Furthermore, if you consider commodity prices scaled up alongside logistics, with a vessel costing up to US$35,000 a day, we are in a much better position to negotiate more favourable rates. We are faster than any other agri-bulk terminal in Mexico, and offer as low as 0.01% losses, with others reaching around 0.5%, if not more," he explains.

"One operator is required for the unloader, which means we are using fewer resources as the terminal is fully-mechanised from unloading to truck or rail-car loading," Linares says. "They can comfortably sit in an air-conditioned control cabin, or operate the unloader via remote control, which gives us great flexibility."

Linares highlights that the efficiency of its Siwertell unloader will meet the terminal's planned growth for the next 40 years. Other benefits include the capability of accommodating an extended draft. "We can cater for larger vessels with a draft of 20m, while other terminals are limited to 13m," he says. "The terminal also has a highly efficient, looped rail network, which is connected to the region's two main railway lines, Ferromex and Kansas City Southern de México."

Grupo Gramosa is dedicated to the commercialisation and transformation of agricultural bulk and the preparation of balanced animal feedstocks. It originally ordered the Siwertell ship unloader in 2018. Bruks Siwertell delivered the unit fully assembled in 2019, with commissioning and operator training being carried out in 2021.

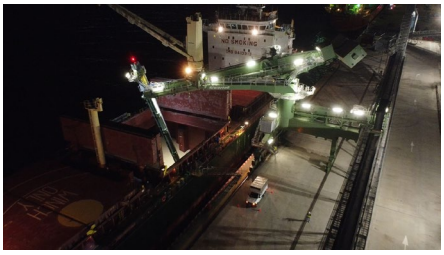
Gramosa chose Siwertell technology because it out-performed all other competitor systems during a four-month selection process; particularly the two 600t/h pneumatic systems it was initially considering.

The analysis showed that a single Siwertell ST 640-M ship unloader would be a more economical solution in the long term. The operating costs comparing two pneumatic unloaders, delivering an equal total capacity, was lower. Also, the Siwertell unloader offered cost savings from reduced berth occupancy as through-ship efficiency was greater. Furthermore, the quality of grain shipments was also considered.

A statement from Gramosa at the time of the order states that: "The Siwertell system was selected after considering many factors and multiple equipment comparisons. Analysis included operating principles and mechanisms, investment costs, as well as operating costs.

"An important factor was cargo loss and damage. We will handle a number of different grains at the new terminal such as corn, rice, wheat, soya beans and canola seeds. The low conveying speed of the Siwertell screw-type unloader means that the grain is not damaged during handling, which will give us added value and differentiate us from our competition.

"Another consideration in the selection of Siwertell equipment was the balance of performance across multiple grains such as soybean meal and DDGs. Other systems on the market did not compare. For example, in the case of pneumatic equipment, it is very efficient at handling grains, but offers very low efficiency, translating to high operating costs, in soybean meal and dried distillers grains."



"It is a great endorsement of our technology, not only for it to be chosen following detailed analysis for several months to compare it with other equivalent capacity systems, but also now that it is operational, for those comparisons to be a reality for the owner," says Patrik Henryson, sales manager at Bruks Siwertell.

"Thanks to the tremendous growth in the agri-bulk segment over the past few years, grain is now the third largest cargo that Bruks Siwertell machines handle," he explains.

"We understand that grain handlers have to meet some of the most challenging dry bulk material demands, and their dry bulk equipment must match these, offering consistently high capacities for maximum profitability, but also maintaining the quality of shipments through sensitive handling.

"We talk about our systems offering grain handlers a competitive edge, and this is exactly what PETRA's new Siwertell system is now delivering. The unloader is very well suited to the job it has been ordered for. It is so efficient that it directly lowers operating costs, and enables Grupo Gramosa to negotiate better commodity rates.

"The advantages offered are incomparable to other technology, and the Siwertell unloader is so efficient that it will reliably meet the terminal's growing capacity requirements for decades," Henryson concludes.

REACHSTACKER INVESTMENT

Kalmar, part of Cargotec, has signed a contract to supply the Port of Helsingborg in Sweden with a Kalmar Electric Reachstacker plus an option for two additional electric reachstackers.

The order includes comprehensive training for maintenance technicians and equipment operators, and delivery is scheduled for the end of the fourth quarter of this year.

The Port of Helsingborg is one of northern Europe's leading ports. To address increasing demand for both container volumes and logistics services in southern Sweden, the port will build a new container terminal further south in Helsingborg. The project is due for completion in 2028.

The new Kalmar Electric Reachstacker supplied to the Port of Helsingborg will be the first machine of its kind to be delivered to a customer in Sweden. It will have a wheelbase of 6.5m, a stacking capability up to 5 high, a maximum lifting capacity of 45 – 32 – 16 in the 1st, 2nd and 3rd rows respectively and a battery capacity of 587kWh. It will join an equipment fleet that already features three Kalmar Eco Reachstackers.

Bart Steijaert, chief executive of the Port of Helsingborg, says: "We will sustainably develop the new container terminal with automation, electrification, and efficient land use. Investing in the electric reachstackers is an important step in our journey."

Eric Wass, sales representative, Kalmar Sweden, adds: "With the Kalmar Electric Reachstacker, terminal operators no longer need to sacrifice performance and productivity in order to reduce their carbon emissions."

KALMAR ELECTRIC REACHSTACKER

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

READY FOR HOT COMMISSIONING


DEPARTING FROM GERMANY

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.

N.M. Heilig designs, builds and installs bulk handling and recycling systems, both single machines and complete turnkey installations. Let's see how we can help you design and produce a system that meets your exact standards and requirements.

N.M. HEILIG B.V.
FROM CONCEPT TO INSTALLATION

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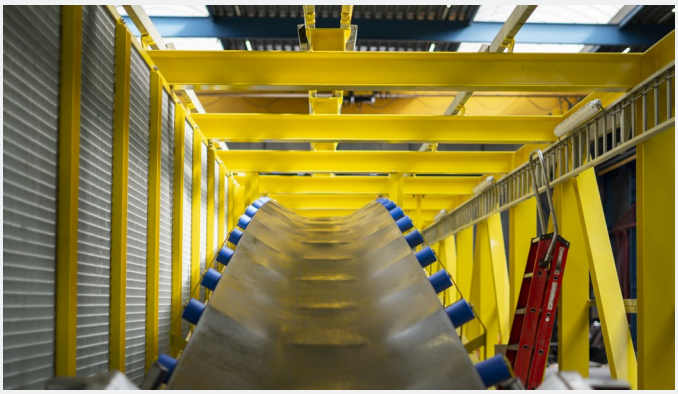

N.M. HEILIG CONSTRUCTED A PARALLEL WORKFLOW, BEGINNING WITH THE CONSTRUCTION OF A NEW SHIPLOADER

ELME™
Swedish Spreader Systems

SPREADING THE WORD

COMPANY NEWS

As the world's leading independent spreader manufacturer, Swedish group ELME Spreader supports companies worldwide with container handling solutions to make their work easier and more profitable.

ELME Spreader was founded in 1974 by Gösta Karlsson, a 25-year old mechanical engineer with a dream of running a business on his own. That dream has turned into a multi-million dollar organisation with customers located on seven different continents, including original equipment manufacturers as well as end users, which use ELME spreaders as the standard working tool for their equipment. The company employs more than 200 highly experienced people, who develop, design, produce, market and service more than 1,000 spreaders annually. By the end of September this year, the total number of ELME- manufactured spreaders exceeded 25,000.

Every single spreader is built at the company's plant in Älmhult, Sweden; from start to finish it's an all in-house production. In Northern Europe that concept is rather unique, but the beneficial reason for this is simple: it gives ELME 100% control over the production and the final product quality.

ELME Spreader continues to invest millions of Swedish Crowns each year in product and production development. The company has an extensive team of engineers that continuously work on developing products and putting together various combinations of options for each model according to the diverse needs of different operations.

AN EXTENSIVE PRODUCT LINE

The ELME Spreader product line covers spreaders for truck, crane and straddle carriers. In addition, ELME offers a wide range of piggyback attachments and special equipment, such as spreaders with a tilting function, tool changer and slab handler, together with the concept of approved spare parts – ELME Genuine Parts.

The ELME top lift spreader models 327T (fixed, 20ft) and 817T (telescoping, 20-40ft) have a tilting function for handling laden containers with, for example, grain, woodchips and other bulk materials requiring a tilt operation. Both models are designed for mounting on reach stackers and are available in 45° and 60° version. Standard capacity for model 327T is up to 32 tonnes (lifting/tilting); standard capacity of model 817T is up to 45 tonnes (lifting) and 32 tonnes (tilting). The product range of spreaders with a tilting function is also available for some crane spreader models, for example, spreader model 3200T.

For more information, visit:
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SCAN ME

VIGAN

ADDING VALUE

How do you make, rather than lose, money on operation when it comes to developing equipment and facilities? Experts at ABTO's Bulk Terminals 2022 conference offered their advice

Professor Mike Bradley, Director of The Wolfson Centre for Bulk Solids Handling Technology, University of Greenwich, considered the issue of value engineering.

Bradley chairs the Solids Handling and Processing Association (SHAPA), a UK trade association for manufacturers of solids handling equipment. Members between them manufacture about £2.5bn of products.

The idea of value engineering is to find cheaper ways of doing things without compromising functionality. He said that there is widespread experience among member companies.

Many equipment buyers of solids handling systems, whether whole terminals or just a silo, put an enormous focus on the capital prices of that in the contract, to the exclusion of looking closely at the functionality.

There is an unwillingness on the part of buyers to pay for the right tools for the job, he told delegates. Consequently, many bulk solids handling plants do not perform properly and are not as reliable as they should be, with lots of warranty claims. A recent RAND report found that about 60% of new solids processing plants never achieved full throughput two years after start-up.


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THIS IS HOW WE ROLL

Average cost overruns on new solids processing systems is 110% – meaning the plants cost more than double the estimate on which the business case was made, Bradley said. The kind of problems encountered included structural failure, problems with the material not flowing, spillage and belt mistracking.

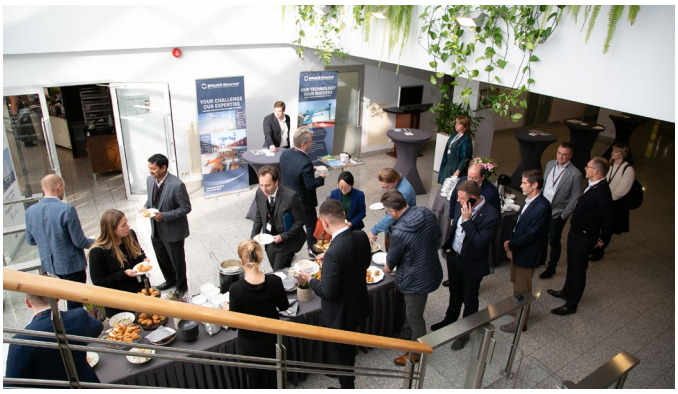
There are also a lot of problems with fires, particularly with biomass cargoes, he said. Spillages, dust build-up on lines causing problems on mobile plant, dust explosions and the like create a lot of downtime cost. "You need to ask yourself 'if I have a stoppage, how much is it going to cost me?'" Bradley explained.

There needs to be a focus on return on investment (ROI), he told delegates. For a new solids handling system, there is probably a 30-year time horizon in terms of utilisation. The question is over what timescale the ROI is calculated. This may be about seven years, but if relatively small losses are scaled up over that time period, they can be very significant.

There are, however, a lot of costs that are not factored in when calculating the ROI, he explained. Unpredicted wear is one, as well as breakdown costs and blockages. In many cases, material does not flow and blockages and stoppages will occur, leading to excess manning because more people are required to run the plant.

Not always in the calculations are energy costs and cleaning, particularly if handling combustible materials. "If you want to keep the facility safe from catastrophic explosions, keep dust off the floor. It only takes a millimetre of dust on the floor, if it comes up into the air, to cause a devastating dust explosion. Money spent on cleaning is well spent," said Bradley.

With dust comes industrial injury claims as well, he said. Biomass dust is now causing a significant number of



injury claims, he said. All of these issues lead to worker dissatisfaction and a high turnover of staff, which means that skills are not maintained. "You want to keep staff, which means providing them with a good atmosphere in which to work."

However, one of the biggest things that is often not factored into ROI calculations is expected performance, Bradley said. It is often assumed that the plant will perform at the rated throughput, but very often it does not, often because of delayed start-up, problems with feeder flow or getting belts to track properly. Downtime and low productivity due to these problems are not factored in and they need to be, he said. Clean-up and remedial actions also need to be taken into account, as well as caking, segregation, particle breakage and contamination.

So how do buyers end up with kits that don't work? A buyer may not be an expert in bulk solids handling so relies on the supplier. Many believe that it is enough to issue a specification, invite tenders and choose the lowest bid, in the belief that if the equipment does not work, it is down to the supplier to fix it. "That does not help you when you have a ship in and you can't get it unloaded in time and finish up with demurrage costs because you won't be able to negotiate the offset of those liquidated damages to the equipment suppliers."

Most buyers also don't understand how much work needs to be done by the supplier to make sure the equipment is going to be reliable for the commodities he is going to handle.

From the suppliers' perspective, they know they are one of only four or five people invited to tender and putting together a tender costs a lot of money. It is not reasonable to expect a supplier to do a lot of work on material characterisation on commodities and how they may behave if he has only a one in five chance of getting the contract. The supplier may not know what he will be dealing with in terms of commodities, for example coal from one part of the world may behave very differently to another part of the world. As a supplier, you cannot show vulnerability to the buyer by asking too many questions. Once the contract has been awarded, it is too late, but the design has been done on guesswork, Bradley explained.

Therefore, often the design of terminals is done on guesswork and assumptions rather than an assessment of where the commodities might come from. When it comes to bulk solids handling, what design is fit for purpose is not black and white. The risk of uncertainty over bulk solids behaviour is a really big problem, he said. Other factors to be considered involve skills, quality of maintenance and intensity of use.

If, as a buyer you put a lot of downward pressure on price on the supplier, they have to make compromises somewhere and take bigger risks and this is where value engineering comes in.

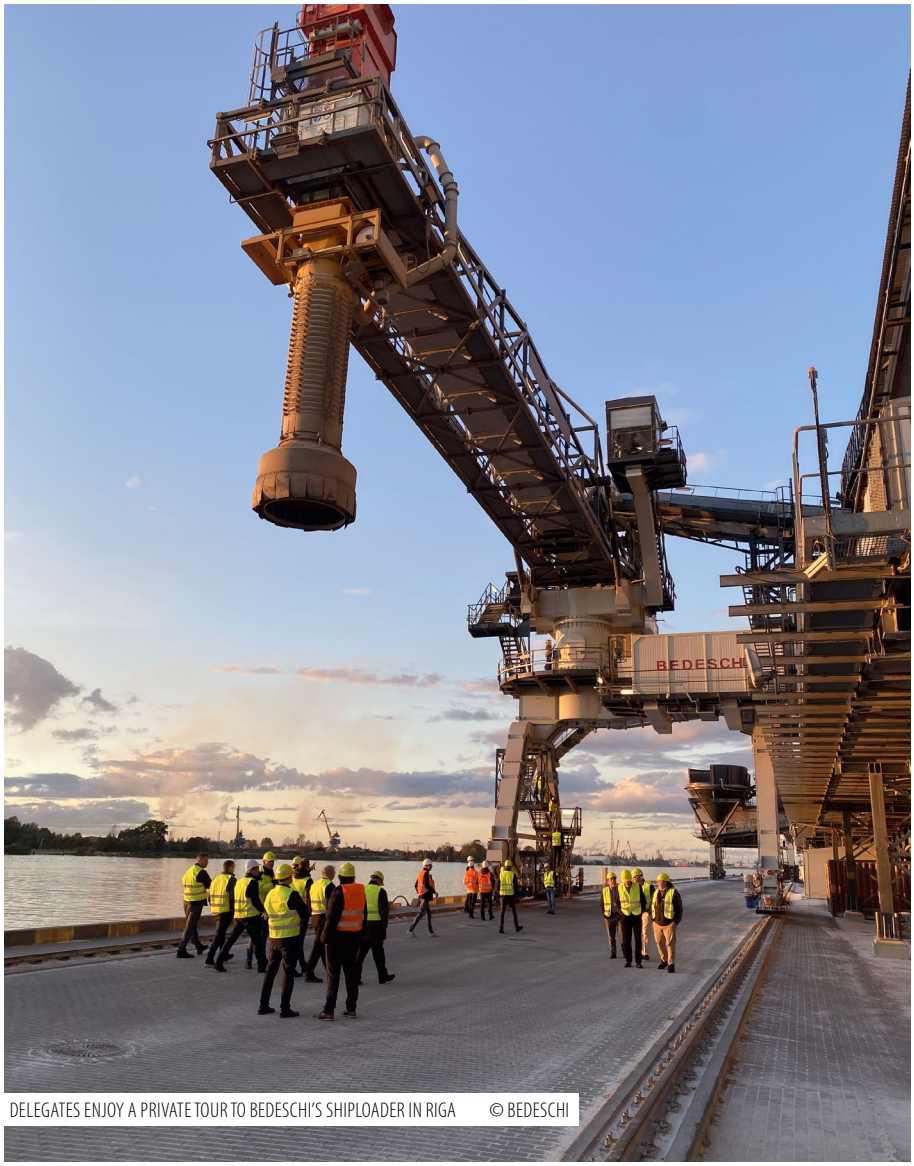
Many aspects of bulk solids handling are not possible to predict with absolute accuracy. To push down the price, suppliers have to do certain things, for example use smaller belts that run faster, which is a big trend and leads to greater dust lift-off. Using cheaper materials will also help, but could increase the risk of corrosion. "How close to the knuckle can we cut it?" asks Bradley. Not paying out for modules that trend the data may be a means of saving money, but when it comes to troubleshooting there are no trends to look at.

As a buyer, it is no use relying on the warranty because consequential losses will normally be excluded from the contract. "If you save 10% on

capital costs and 1% on throughput over 30 years, is that a good deal?" Bradley quoted Henry Ford, who said: "There is always someone prepared to do it cheaper, but at what cost?" Cutting corners on equipment does not make a profit. There needs to be recognition by the buyer that the unique challenges and variation in the bulk solid will change the efficiency of the machine.

Bradley urged people to look at different commodities to see how they might vary. Bulk density, for example, is hugely variable, he told delegates. "A supplier has to take a position on these and if you don't help him take the right position, you will not get equipment that works reliably." For example, there is a design procedure for hoppers and silos where one can take samples and calculate discharge reliably. However almost no silo manufacturers do these tests because they fear they will be undercut by cheaper suppliers and buyers don't recognise the value of the design.

SHAPA has come up with a technical guide, to help tease out the added value, equipment reliability, having skilled labour on call and running costs. You need an understanding of bulk solids characterisation, risk management and to consider the full cost of ownership. "Don't trust to luck," Bradley concluded.



DELEGATES ENJOY A PRIVATE TOUR TO BEDESCHI'S SHIPLOADER IN RIGA © BEDESCHI

STANDARD VS BESPOKE

Ludovico Bernardi, director of Asia Pacific at Bedeschi, considered standardised and tailor-made solutions. A standardised solution will have lower capital costs than a tailor-made one, he explained, including less spare parts and a shorter delivery time. A tailor-made solution will evidently be fit for purpose because it is designed for a specific project.

Disadvantages of standardised solutions include the fact that operational compromises have been made and it is less suitable for brownfield projects. Tailor-made solutions, on the other hand, involve higher capex and a longer delivery time.

While in general a standardised product has a lower price, Bernardi believes the value against the price ration is shifted more towards the vendor rather than the customer. Capex is only spent once, however, whereas the total cost of ownership is what is spent every day the equipment is operated. This can be used to assess the real value of what is being obtained.

He says Bedeschi believes the tailor-made approach is of greater value to the customer.

HIGH EXPECTATIONS

David Ingvarsson, sales manager Europe at Bruks Siwertell, focused on sales of bulk handling equipment. The aim is to ensure that dust emissions are kept to a minimum, make little noise, are easy to operate and reasonably light weight with low energy consumption, he said.

The market for bulk handling equipment is quite competitive, he says but at the same time there are very high expectations as far as availability and endurance of the equipment is concerned, he told delegates.

Equipment may be used in remote areas, which means that storage of spare parts is needed, he explained.

A research and development programme at Bruks Siwertell covers the status of the agri-bulk market, a segment with steady growth, he said.

The programme includes considering components used and production methods used to ensure the long life of components.

VIGAN: A GROWING MARKET

COMPANY NEWS

The Republic of South Africa has about 59m inhabitants, spread across a total surface of about 1.2m km² and thereby a population density of 48 inhabitants/km².

The Republic of South Africa is an emerging country with a modern, relatively diversified economy with many strengths: abundant natural resources, a moderate climate and efficient commercial agriculture. However, the economy is still relatively dependent on the mining sector (gold, platinum, diamonds, ferrochrome, coal, and so on).

The agricultural sector meets most of the domestic needs. South Africa's main exports are corn, wool, sugar, peanuts and tobacco. In 2019, South Africa imported 4m tons of cereals.

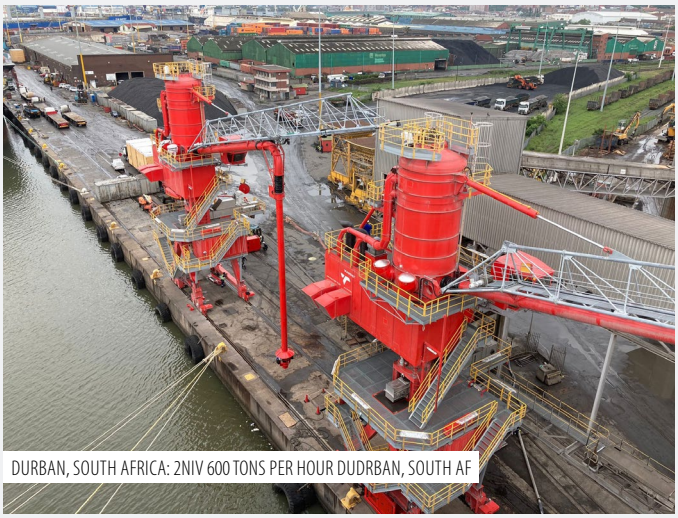
The country is in the top three of the largest African economies with Nigeria and Egypt. The coastline of South Africa is flanked by the Atlantic and the Indian Ocean, its coastline stretching more than 2,800km from Mozambique to Namibia.

Along that vast coastline, Port Terminals handles mineral bulk commodities at the ports of Richards Bay, Port Elizabeth and Saldanha, and handles agricultural bulk commodities at the ports of Durban and East London.

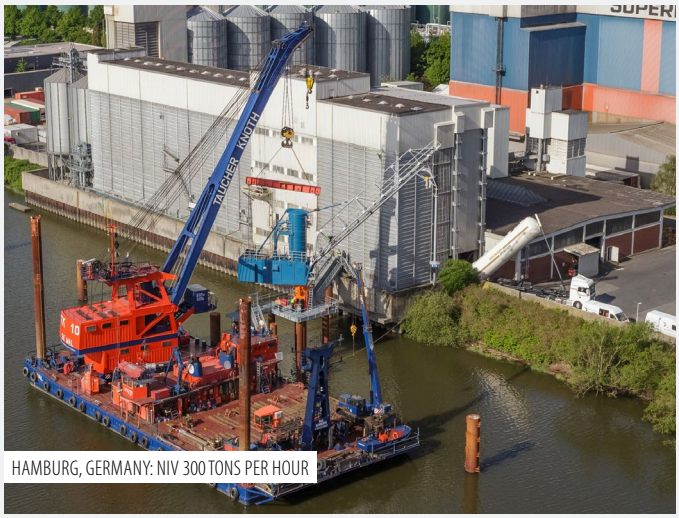
In the 1990's, Vigan supplied three machines – one NIV 160, one NIV 200 and one NIV 320 – to Durban Bulk Shipping and two NIV 250 to Transnet Agriport Terminal Durban. In 2021, VIGAN won a new contract for two NIV 600, which are now in production for the Transnet Agriport Terminal Durban site.

By the end of 2021, the region of Durban was able to count the presence of seven Vigan ship unloaders. Needless to say, we are very proud to have our machines operating in the largest import/export port in South Africa, as well as one of the biggest ports in Africa.

For more information, visit vigan.com



DURBAN, SOUTH AFRICA: 2NIV 600 TONS PER HOUR DUDRBAN, SOUTH AF



HAMBURG, GERMANY: NIV 300 TONS PER HOUR

MEETING THE CHALLENGES

Experts at Bulk Terminals 2022 discussed some of the issues facing the bulk handling industry and revealed a range of solutions

According to Frank van Laarhoven, senior sales manager Europe at RAM, spreaders, pollution and dust are major problems in the handling of bulk commodities and terminals are looking for other solutions and other options.

As far as existing container ports are concerned, larger ones can operate only handling container cargoes, but smaller ports may need to boost financial figures through handling commodities other than containers, Laarhoven told delegates. The solution, he believes is containerised bulk handling, as existing facilities can be used. A rotating spreader and a water mist system are really the only key requirements – although not suitable for all commodities.

Containers can pick up commodities from the source and then transport them to the port to be loaded with mist spray equipment being used directly in the ship.

This eliminates the problems of different silos not being able to be used for a mixture of commodities, whereas in this scenario containers can be used and then cleaned for use for another commodity. Transport is more simple and there is no need for open stockpiles of commodities. The commodity can

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Course Leader: Mike Bradley, Professor of Bulk and Particulate Technologies and Director of The Wolfson Centre, University of Greenwich

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then by loaded into the vessel using a revolving spreader system.

Existing cranes can be used so investment in new equipment is kept to a minimum. Containers can be loaded directly into a hopper and then into a smelter for those products requiring this process.

TRYING NEW TECHNIQUES

Ian Mills, assistant lecturer at Solent University, told delegates about the Delphi Technique, which can be used for a range of problems such as forecasting or driving the carbon footprint down, for example.

The process requires selecting a panel of experts to consult on a particular project. A set of anonymous questions are then prepared that the panel will be asked to look at. The answers are analysed and then fed back to the individuals with anonymous feedback from others, which will give them the possibility to modify their views.

Ultimately, the aim is to get a consensus view, which can then be broadcast publicly. It is a very powerful technique, Mills said. Unlike a survey, it offers "quality rather than quantity" and provides a way forward that can then be fine-tuned.

"There is no loss of face and it is in everyone's interest to get to an agreed way forward," Mills explained and it is far more effective than getting a consulting firm involved.

UNDER PRESSURE

Vladislavs Jakovlevs, chief executive of Riga Bulk Terminals (RBT), says the bulk terminal is a fairly new venture, founded about 14 years ago. It is mainly working as an export and import bulk terminal. On the export front, grain is key, while on the import side the terminal works with products such as alumina, sugar and soy. The facility acts as a railway hub for the Baltic and the market is the whole post-Soviet area, which operates the same railway guage.

There are three big ports in Latvia, led by Ventspils and all are well equipped to handle big volumes of commodities such as coal, fertilisers, grain, iron ore, and oil products. Latvia is able to load up to 20m tonnes of coal every year and around 10m tonnes of fertiliser, Jakovlevs told delegates.

It works with partners from Central Asia, Belarus, Ukraine and Russia, before the war. Volumes with Russia have obviously been going down and unpredictability of business is the norm.

Current challenges include the Ukraine war and the energy crisis. When RBT began operations, the main emphasis was to load commodities for the post-Soviet space, mainly sugar and soy. There were significant volumes of these commodities in the market, he said, but the invasion of Crimea changed everything. Sanctions were introduced that had a profound effect on business.

RBT has also faced the huge challenge of changing the business model and adapting infrastructure. This was a struggle for a number of years, he said. A further challenge was the arrival of covid-19, when the whole market froze, he said. Customers did not know where to store commodities because they could not sell them. There were many restrictions including contacts for new equipment and operational challenges because of sickness levels among the port workers.

The struggle continues today with the Ukrainian war. Existing supply chains have been broken and large volumes of cargo from Asia came to Riga as a result. There have also been a lot of sanctioned commodities, including steel and wood products from Belarus.

The industry is struggling to replace this lost business and also in the fertiliser business, where sanctions have been put in place. As far as the Belarus corridor is concerned, Ukrainian grain is out of reach because of the war.

Meanwhile, the cost of operations and salaries is under pressure. The terminal is almost 100% electrified, so electricity costs are very high; the organisation is looking at wind power as one viable option. The terminal is still investing in infrastructure, Jakovlevs stressed, although construction prices are unpredictable.

Despite these challenges, cargo volumes are actually rising, he said, but this is no time to relax. It's important to keep calm and carry on.

FRESH CONNECTIONS

Kristīne Malnača, strategic planning and economics team leader at Rail Baltica, told delegates details of a new railway line of 870km that will be built across the Baltic states of Estonia, Latvia and Lithuania. The plan is create a seamless route from north to south including Poland.

New double track will be built to European track widths, with an axle load of 25 tonnes and a Swedish gauge. The new line with connect the main cities of the three states and will be a high-speed line, designed for freight trains as well as passenger service. New freight terminals will also be built.

The new connection will reach the capitals of the states in a much shorter time than currently, which will be a huge benefit. Three ministries are involved in the project over the three states.

At the moment, detailed plans are being made and construction has started, although the financing for the project must be ensured. Funding is mostly coming from the European Commission.

A new economic corridor is also planned, which the train line will enable, she said. The new connection should be completed by 2030, offering links into the rest of Europe.

Currently, the design phase is ongoing, with construction work in Riga central station and at the airport. A new freight terminal near the airport in Riga is also under consideration. The rail project will be completed section by section so some of these can start up ahead of the others before the full line is completed.

Materials will be purchased centrally. The plan is to minimise the risk of shortages and ensure consistency across the network. Material for construction may be shipped by sea and volumes will be considerable.

BEDESCHI: GOING GREENER

COMPANY NEWS

The cement industry is increasing every year due to the continuing growing rate of industrialised and urbanised areas and the consequent construction of new buildings, roads and infrastructure, particularly in emerging countries. At the same time, cement factories are major contributors to global CO_2 emissions and dust emissions that have high environmental impact.

> Bedeschi is committed to help reach this global environmental goal thanks to its 110 years of experience and the wide variety of solutions it can offer

Recently, the common goal has been set to keep the temperature rise below 2°C to 1.5°C. More than 77 countries are committed to control and reduce the impact of the cement industry on environment by 2050.

Reducing emissions in the cement industry will play a pivotal role in addressing the climate challenge. Companies will need to identify the best paths through technological innovation, eco-friendly equipment and modern technology in order to ensure the highest environmental standards.

Bedeschi is committed to help reach this global goal thanks to its 110 years of experience and the wide variety of solutions it can offer. The company's research and development department is constantly working to improve the capability of its systems, focusing on environmental protection, energy efficiency, investments into eco-friendly and innovative equipment and pollution prevention.

The solutions Bedeschi is installing in its machines to reduce dust emissions and material spillage during bulk material operations are several: a careful selection of belt width and speed according to the handled cargo; the installation of belt conveyors and trippers in enclosed galleries; the use of pipe conveyors and enclosed conveyors; the use of gas cleaning and water spray for dust suppression, telescopic or spiral chutes; implementation of eco-hoppers; and the use of different conveying systems, such as screw conveyors and chain conveyors.

Besides avoiding spillage and dust emission, a pipe conveyor has no need for the transfer points between straight conveyors. This solution reduces the consumption of energy needed to handle the material, not to mention the energy used for the filters and other suppression systems to lower dust emission. Less transfer points in a plant means less chutes, cables and other auxiliary equipment is required, with a positive payback in terms of erection timeline and related environmental cost.

Without transfer towers, a lot of steel fabrication is saved as well as foundation works and erection activities, thus reducing the overall carbon footprint of the plant and its environmental impact.

Moreover, Bedeschi is extremely proud to work closely with our clients in projects aimed at using alternative fuels to limit the use of fossil-type fuels, as well as reducing plant power consumption.

For more information, visit: bedeschi.com

CASE STUDY: MELON, CHILE

BEDESCHI'S ECO-HOPPER IN PUNTA ARENAS, CHILE

Bedeschi supplied to Melon SA a new Eco-Hopper to be operated on the austral port of Punta Arenas, Chile.

The Eco-Hopper is designed for direct unloading of clinker to trucks at a rate of 600t/h and is designed to work with 12m^3 grabs. The machine is equipped with pulse-jet bag filters with high filtration capacity and performance and with low compressed air consumption: an economical and flexible solution to satisfy the stringent environmental standards required.

"The eco hopper has been a crucial part of the project and the environmental results are very satisfactory," says Pedro Pinto, corporate technical manager at Melon.

A set of four bag filters are mounted in the volume between the upper receiving hopper and the hopper main body. The bags are automatically cleaned with a pulse jet system and all the particles removed from the bags simply fall inside the hopper itself. Access platforms are provided for an ergonomic and safe replacing of the bags, together with a fan outlet with silencer for noise reduction.

The Eco-Hopper is equipped with a fully covered feeder conveyor to avoid dust dispersion in the wind and it maximises the efficiency of the dedusting filters. For clinker loading inside the truck, there is a dust-controlled telescoping spout. The automatic lifting control keeps the skirt always in contact with the forming pile, to avoid dust escaping. An aspiration system keeps the inside of the chute depressurised.

Bedeschi's Eco-hopper can guarantee to contain and minimise emission during every unloading phase, both from ship to hopper and from hopper to truck, and as a result, the company "has been able to fulfill and exceed the environmental regulations", says Pinto. "The teamwork between Melon and Bedeschi has developed a creative tailormade solution that allows it to operate in a multi-purpose port."

In fact, the Eco-Hopper is designed with a special support structure that allows a solid anchoring of the hopper to the pier structures during unloading operations, but at the same time it allows the machine to be moved by means of SPMT when not in use. This configuration is essential due to the multi-purpose nature of the Punta Arenas port and the structural limitations of the existing pier.

These operational constraints have meant Bedeschi's engineers needed to find a winning solution in terms of flexibility of use, weight limitation and structural strength.

CASE STUDY: SECIL, PORTUGAL

3D DESIGN OF SECIL PIPE CONVEYOR

Incorporating alternative fuels such as waste and biomass to replace fossil fuels, a multi-decade trend in the industry, could reduce emissions by nearly 10% by 2050.

SECIL Group has awarded Bedeschi a contract to supply a new pipe conveyor to handle different kind of alternative fuels at Outão Cement Plant in Portugal. This project further strengthens the co-operation started with SECIL more than 20 years ago and it is part of the major R&D Clean Cement Line Project.

The CCL project aims to bring the Outão cement plant to the forefront of energy efficiency and lowest CO_2 emissions among the European cement producers.

The project is partly funded by the Portugal 2020 Government incentives programme and it aims to develop a new concept of cement production. Bedeschi's supply to SECIL Group will help eliminate dependence on fossil fuels. The concept of Industry 4.0 will become essential for the plant's management for improving efficiency and optimising the processes, therefore a digitalised system will be integrated into the whole plant.

Bedeschi's engagement in this project contributes to some of its sustainable development objectives, especially environmental protection, as established in Agenda 2030 by the United Nations. For many years, Bedeschi has been working hard to achieve these goals.

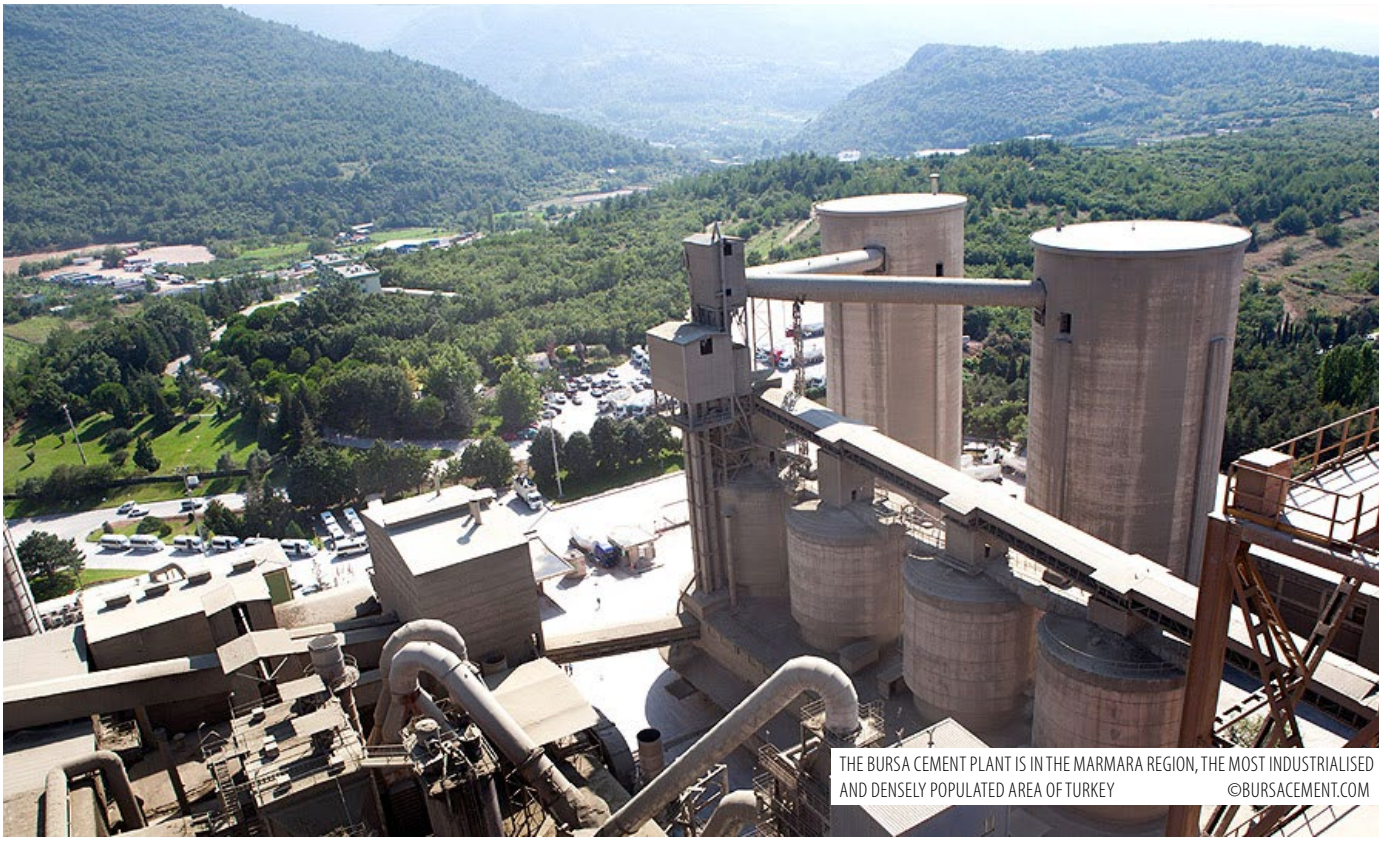
The pipe conveyor has a diameter of 250mm and conveying length of 350m and enables safe and clean transportation of alternative fuels at a rate of 300m3/h. Bedeschi will design and supply the complete pipe conveyor system, delivering the structure in pre-assembled transportable modules to allow a smooth and trouble-free erection.

The pipe conveyor has been selected for this application as it is a modern and environmentally friendly transport system that solves numerous problems associated with conventional conveyor systems (such as spillage of materials, limitations with regard to steep incline, and so on) and transportation of difficult materials.

There isn't one global solution that fits all in the cement industry, and it will be a long journey to turn it into a green industry. Bedeschi is finding its own solutions to make a positive impact in this process. Thanks to research and development in green technology, we are able to design and produce machines and turnkey installations that have the highest environmental standards. We are all committed to the fundamental aim: guaranteeing a sustainable model for the future.

HARD LESSONS

There have been a number of upgrades at cement facilities announced recently that aim to reduce energy consumption and emissions



THE BURSA CEMENT PLANT IS IN THE MARMARA REGION, THE MOST INDUSTRIALISED AND DENSELY POPULATED AREA OF TURKEY ©BURSACEMENT.COM

Turkey's Bursa Çimento Fabrikasi is upgrading its entire cement plant in Bursa to the latest technical standards in order to reduce CO_2 emissions and energy consumption to a minimum. The company has ordered 26 machines from Aumund Fördertechnik in Rheinberg, Germany for this modernisation. The equipment will be supplied in January 2023.

The investment's objective is to create a showcase facility for the Turkish cement industry. Aumund will supply six belt bucket elevators, four chain bucket elevators and a number of different conveyors. The machines will be used throughout the production process, from raw material preparation to clinker grinding.

The conveying capacities of the 26 machines range from 14tph right up to 808tph. Three of the belt bucket elevators will be equipped by Aumund with its digital maintenance system Premas 4.0 predictive maintenance solution. Various chain bucket elevators and a bucket apron conveyor from Aumund are already in operation at Bursa Cement.

INDIAN CEMENT EXPANSION

The Adani family, through special-purpose vehicle Endeavour Trade and Investment, has successfully completed the acquisition of Ambuja Cements and ACC. The transaction involved the acquisition of Holcim's stake in Ambuja and ACC along with an open offer in both entities as per SEBI Regulations.

The value of the Holcim stake and open offer consideration for Ambuja Cements and ACC is US$6.50bn, which makes this the largest ever acquisition by Adani, and also India's largest ever mergerss and acquisitions transaction in the infrastructure and materials segment. After the transaction, Adani will hold 63.15% in Ambuja Cements and 56.69% in ACC (of which 50.05% is held through Ambuja Cements).

"What makes cement an exciting business is the headroom for growth in India, which exceeds that of every other country well beyond 2050," says Gautam Adani, chairman of Adani Group. "Cement is a game of economics dependent on energy costs, logistics and distribution costs, and the ability to leverage a digital platform to transform production as well as gain significant supply chain efficiencies.

"Each one of these capabilities is a core business for us and therefore provides our cement business a set of unmatched adjacencies. It is these adjacencies that eventually drive competitive economics. In addition, our position as one of the largest renewable energy companies in the world will help us manufacture premium quality green cement well in line with the principles of a circular economy.

"All of these dimensions put us on track to become the largest and most efficient manufacturer of cement by no later than 2030."

Currently, Ambuja Cements and ACC have a combined installed production capacity of 67.5 MTPA. The two companies are among the strongest brands in India with immense depth of manufacturing and supply chain infrastructure, represented by their 14 integrated units, 16 grinding units, 79 ready-mix concrete plants and over 78,000 channel partners across India.

Both Ambuja Cements and ACC will benefit from synergies with the integrated Adani infrastructure platform, especially in the areas of raw material, renewable power and logistics.

IMPORT DUTIES

The Philippines Tariff Commission has introduced new duties be applied to imported Vietnamese cement for a five-year period up to 2027.

The decision follows a Department of Trade and Industry investigation into Vietnamese cement exports to the Philippines in mid-October 2022, according to the Manila Bulletin newspaper. It found that imports of ordinary Portland cement (OPC) and blended cement from Vietnam were not injurious to the domestic cement sector at present.

However, it also found the threat of material injury to be 'imminent.' This is due to Vietnam's 'substantial' cement overcapacity, which may enable it to rapidly increase its exports. The conclusion provided the basis for the Commission's latest order.

Any new duty will replace provisional 2.7 – 32% duties introduced in December 2021. Previously, strong competition reportedly prevented the measures from causing price rises. Commentators now predict that the Commission's proposed measures will result in a rise in prices.

GREEN BAY SHIPMENTS

The month of September saw 190,083 tons of cargo shipped through the US Port of Green Bay, bringing the total cargo shipments to 1.3m tons for the 2022 shipping season.

Limestone and cement were again the top cargoes moving through the port in September with 72,453 tons of domestic limestone imported and 45,936 tons of cement imports. At 1,303,956 tons shipped through the end of September, total cargo is down about 5% from a year ago.

"While we have dropped a bit behind the 2021 year-to-date tonnage total, we remain cautiously optimistic we will hit our annual target of 2 million tons," says Dean Haen, Port of Green Bay director.

"With three months remaining in the shipping season, continued imports of limestone, cement and coal, along with salt and petroleum products should get us close to our target."

In addition to limestone and cement, September shipments included 35,986 tons of imported coal, 18,882 tons of petroleum products imports and 5,222 tons of petroleum products exports.

The Port also saw the first deliveries of liquid asphalt (6,500 tons) and carbon anodes (5,104 tons) of the year in September.

Sixteen ships, including one Canadian vessel, moved through the Port in September. For the 2022 shipping season there have been 114 ship visits compared to 129 through September in 2021.

BEUMER GROUP: U TURNS KEEP PORTS ON TRACK

COMPANY NEWS

BEUMER Group's u-shaped conveyors enable an efficient, environmentally friendly operation in port terminals. They have a narrower curve radii than a troughed belt conveyor, as well as higher mass flows than pipe conveyors, and offer extremely dust-free transport. U-shape conveyors are therefore a safe investment that can be easily integrated into an existing infrastructure.

Belt conveying systems provide an ecological and environmentally friendly alternative to truck transport. Owners can automate processes, thereby reducing energy consumption, as well as relieving personnel from manual work. A further advantage is that a belt conveyor enables the transport of very different materials to and from the port.

BEUMER Group offers different solutions depending on the application. Troughed belt conveyors allow high mass flows even with heavy and robust materials. Their open design makes them suitable for coarse materials and very large volumes. In contrast, pipe conveyors have other specific advantages. The idlers form a closed tube around the belt, 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 a staggered arrangement keep the tube shape closed. Pipe conveyors also allow the implementation of narrower curve radii and larger angles of inclination than open troughed belt conveyors.

However, requirements are becoming more demanding. On the one hand, the quantities of bulk materials are growing, while on the other, environmental issues mean they have to reach their destination with little dust and noise. In addition, there is often complex routing to take into consideration.

BEUMER Group has therefore developed the u-shape conveyor to tackle these issues. A special idler configuration creates a u-shape, enabling the bulk material to reach the discharge station efficiently. An idler configuration similar to that for the troughed belt conveyor is used for opening the belt. The unique feature of this solution is that it combines the advantages of open troughed belt conveyors and closed pipe conveyors.

In addition, the material conveyed is protected against external influences such as wind, rain or snow, while the environment is protected against possible material loss and dust. This conveying solution is suitable for coarse as well as very fine material.

BEUMER Group has therefore expanded the options available to port owners by offering the best solution for bulk material transport, depending on the project.

For more information, visit:
www.beumer.com

STAYING SAFE

There have been a number of initiatives in recent months relating to safety and actions that can be taken to alleviate risk for the shipping industry

The Indian Ocean High Risk Area (HRA) will be removed as of January 1, 2023 as the piracy situation in the region is deemed to have improved. Industry players stress, however, that voyage preparation, threat and risk assessment is essential when following Best Management Practice 5 (BMP5).

The removal of the HRA reflects a significantly improved piracy situation in the region, largely due to concerted counter-piracy efforts by many regional and international stakeholders. No piracy attacks against merchant ships have occurred off Somalia since 2018.

The International Maritime Organization (IMO) has been informed of the decision made by International Chamber of Shipping (ICS), BIMCO, International Marine Contractors Association, Intercargo, Intertanko and Oil Companies International Marine Forum.

Measures enacted to secure the waters by military, political, civil society, and the shipping industry, as well as Best Management Practices guidance, have reduced the threat of piracy in the Indian Ocean. The removal of the HRA will come into effect at 0001 UTC on 1 January 2023, allowing charterers, shipowners and operators time to adapt to the changed threat from piracy.

Best Management Practices 5 (BMP5) will continue to provide the necessary guidance for shipping to ensure threat and risk assessments are developed for every voyage to mitigate the risks presented by remaining security threats in the region.

The shipping industry will continue to monitor and advise on maritime security threats to assist the safe transit of vessels and the seafarers who crew them. Pre-voyage threat and risk assessments should consider the latest maritime security information from organisations supporting the Voluntary Reporting Area (VRA)

The VRA administered by United Kingdom Maritime Trade Operations (UKMTO) has not changed. Ships entering the VRA are encouraged to report to the UKMTO and register with the Maritime Security Centre for the Horn of Africa in accordance with industry best management practices).

The HRA IMO submission co-sponsors commented: "This announcement is a testament to nearly 15 years of dedicated collaboration to reduce the threat of piracy in the Indian Ocean. Through a combination of efforts by military, political, civil society, and the shipping industry over the years, operators and seafarers are now able to operate with increased confidence in these waters.

"Thanks and gratitude is given to all the seafarers and offshore workers who have served during this time in safely maintaining global trade and operations. Threat and risk assessments should still be carried out, and best management practices followed to continue to mitigate the risks presented in a changeable and often complex and potentially threatening environment."

CUTTING CORRUPTION

Corruption in the maritime industry is a multifaceted problem that requires a multifaceted solution. Maritime corruption poses social, financial and environmental burdens on the community and therefore to tackle it, both the public and private sector as well as other actors must work together to align standards, protect crew members and strive towards sustainable trade and development patterns.

The Maritime Anti-Corruption Network (MACN) understands the complexities of corruption in the maritime industry and emphasises that driving change is much easier when the industry works together in fighting this battle. It has produced an insight brief that proposes ways of tackling

corruption in the maritime industry through collective action, transparency, the role of the private sector and industry leadership buy in.
To read the brief, visit: macn.dk

NOISE AND VIBRATION

The Indian Register of Shipping (IRS) has been providing services towards noise and vibration measurement and analysis for more than two decades. Earlier this year, it was awarded the work of Noise and Vibration Measurement and Analysis for six bulk carriers by Colombo Dockyard in Sri Lanka.

The bulk carriers are being built for a Norwegian owner in compliance with latest International Maritime Organization (IMO) and International Standardization Organization standards for comfort of seafarers. The ships are powered by a four-stroke diesel engine with an electric hybrid system supplying additional power through a battery system. The vessels are eco-friendly, as they have substantially lower emissions compared to conventional bulk carriers of the same size.

The first vessel in the series of six was delivered on 21 September this year and the subsequent vessels will be delivered in four month intervals. These vessels are developed as climate-friendly vessels, with lower emissions output compared with a conventional bulk carrier of the same size.

Noise and vibration measurements are carried out for crew and passenger comfort. IRS carries out noise measurement and analysis as per IMO Resolution MSC.337(91) and class requirements and vibration measurement & analysis as per standard ISO 6954:2000 and class requirements.

IRS also provides assistance to reduce excessive noise and vibration. Prediction of noise and vibration levels are carried out for newbuild ships at design stage before construction to enable necessary changes at design stage itself.

D K Gupta, head of marine technical services says: "A dedicated team of IRS professionals is regularly engaged in provision of noise and vibration measurement and analysis for shipyards and shipowners in India and abroad. Seafarer wellbeing is an important element of consideration for owners and managers and through such services we aim to assist owners to improve seafarer wellbeing."

TT CLUB CHECKLIST

Falls from height remain one of the biggest causes of injury and fatalities in the workplace. The distance of the drop need not always be as great as imagined to cause harm. Freight transport liability insurer, TT Club is debunking some common perceptions, offering advice on risk mitigation.

The insurer refers to a 'seven-step' checklist to assist operators in perfecting a safer work environment, but emphasises that awareness of the issue and causation is a critical initial approach to the danger.

UK regulations stipulate that 'working at height' is defined as any place where, if there were no precautions in place, a person could fall a distance liable to cause personal injury.

The US, meanwhile, requires that fall protection be provided at elevations of four feet in general industry workplaces, five feet in shipyards, six feet in the construction industry and eight feet in longshoring operations.

Typically, in the international context there is no specific minimum height above which regulations apply and each jurisdiction has its own requirements. Similarly, the need for fall protection equipment varies. Operators across the supply chain therefore need to be familiar with varied local regulations in every location at which they have employees.

"Working at height remains one of the biggest causes of fatality and major injury in the workplace. The common perception is that these relate to falls from ladders or through fragile surfaces, where workers are far from the surface below. This is not always the case," comments Mike Yarwood, TT's managing director, loss prevention.

"It might come as a shock to learn that a man died falling just a meter and a half from within a standard shipping container sited on a road trailer."

The deceased worker was inside an open top container preparing access for an overhead crane to remove the cargo of steel girders. He fell from the container because the rear doors of the unit were open. Although the company had various generic risk assessments and safe working method statements, it had not put in place simple control measures to prevent or mitigate a fall from the rear of this container. The tragedy could have been averted.

"A court fined the company £200,000 plus costs," says Yarwood. "But the penalty could have been far greater and potentially unlimited. The case highlights a key issue – many haulage firms and warehouse operations may not view work at the back of an open trailer or container on wheels as a 'working at height' activity."

As protecting the workforce must be a priority, TT has summarised a seven-step course of action to help*

- Conduct a working at height risk assessment
- Implement working at height training
- Invest in personal protective equipment for working at height
- Complete safety equipment maintenance
- Implement a personal safety system
- Update and review your procedures
- Record everything.

"As with all risk mitigation, awareness of the dangers is the primary necessity," concludes Yarwood. "After that a common-sense approach is best – where work at height cannot be easily avoided, take action to prevent falls with guard rails, and so on. Where risk cannot be eliminated, minimise the distance and consequences of a fall and train staff well to make them aware of the dangers."

Cargo storage

TT Club has also turned its attention to the safety risks at cargo storage facilities. Some of these can lead to catastrophic incidents, though less startling events, together with near misses are more common in a congested supply chain world. Together these may have the potential to be just as damaging and disruptive. In continuing its mission

to mitigate such risks, TT has issued a new warehousing series of its graphic *TT Briefs*.

"Whether located in port areas or inland, warehouses are a fundamental component of the global supply chain and arguably, they have become increasingly important nodes, as just in time supply chain models are being adjusted with a more conservative approach to longer-term inventory storage," comments Mike Yarwood.

"We are keen to increase awareness of all key risks, however our role at TT is also to guide operators in the prevention of incidents. Our *TT Brief* series seeks to provide pithy messaging to support toolbox talks and good operational practices."

Safety precautions begin with practical considerations for establishing a warehouse. These inevitably relate to location, size, availability of labour and so on, but the first and most important decision will be whether to own or lease the property. There are considerable differences in responsibilities and liabilities and these must be fully understood to mitigate risk.

While there are more obvious physical measures such as perimeter fences, CCTV and barriers, effective security measures also include procedural aspects such as ensuring due diligence when hiring personnel. A consideration of growing importance is that of climate change, risk of exposure to weather related losses and likelihood of flooding. A less obvious consideration might be the activities of adjacent facilities, including potential contamination risks from incompatible cargoes.

Perhaps the most significant in terms risk to life, damage and cost of claims, is fire. The primary causes of warehouse fires include electrical failures or malfunction, hot works, maintenance related issues and poor enforcement of no smoking policies. "Preparation and planning are crucial," says Yarwood. "Periodic risk assessment, effective maintenance and training, enforcement of policy and good housekeeping are all key."

DRIFT PREDICTION

DNV's Emergency Response Service (ERS) has launched a new drift prediction feature to mitigate risk with disabled and drifting vessels and to predict the path of oil spills and floating objects, including man overboard and containers. An incident onboard a vessel can result in a disabled ship, oil spill, floating cargo or persons drifting in the water to create an unpredictable situation with safety and environmental risk that complicates emergency response.

Shipping companies need to be able to determine the drift paths of floating assets, objects or spilled chemicals at an early stage after an incident so these can be plotted on their own navigational charts to plan a prompt and efficient response when time is of the essence. In many cases, efficient handling of such incidents is significantly increased by having access to a prediction of the associated drift path.

"The drift prediction feature is a powerful addition to the toolbox of data-enhanced services within ERS supporting a fast and effective emergency response demonstrated across 741 maritime incidents over the past three decades," says DNV's ERS principal engineer Rossen Panev.

For vessels drifting in the ocean, a drift prediction is vital to identify immediate risks and criticality. For search-and-rescue (SAR) operations, drift predictions are used to narrow down the SAR area, which increases the probability of a successful operation. Handling of oil spills is dependent on a prediction of both the drift path and the behaviour of the oil spill, which is highly dependent on the type of oil spilled.

The ERS drift prediction service employs state-of-the art computer modelling based on the open-source software package OpenDrift. This enables the ERS duty team to perform the necessary simulations and generate a predicted drift path considering local environmental conditions.

Drift simulations are executed through a web-based service developed and hosted by MET Norway (the Norwegian Meteorological Institute) that combines forecasts for current, wind and wave conditions from local and global sources to provide accurate trajectory modelling.

This allows fast generation of predicted drift trajectory data over a long period of time that gives stakeholders sufficient time to plan, react and mitigate, in contrast to slower and less accurate manual prediction methods that can delay decision-making.

Celebrating its 30th anniversary this year, ERS™ already uses advanced 3D digital modelling for residual buoyancy, damage stability and strength calculations after an incident, having generated more than 15,500 such computer ship models to date.

As part of the development of the drift prediction service, DNV has developed a numerical model to calculate drift velocities for disabled vessels in different sea conditions and generate an approximate drift trajectory to evaluate navigational hazards along the predicted path.

Similarly, the service provides oil spill drift simulation as well as an 'oil budget report' that estimates the volume of oil that is dispersed, evaporated or still on the surface over the simulated period. The software also can generate drift path predictions for objects in the water such as life rafts and persons in the water to define the area for search-and-rescue operations, as well as lost containers, smaller vessels and EPIRBs.

"We may not be able to tame the sea, but precise data modelling now gives us predictability to counteract uncontrolled drift and greatly improve emergency response," says Panev.

MARTIN: GUARDING BY LOCATION

COMPANY NEWS

R Todd Swinderman, PE/ CEO Emeritus and Daniel Marshall, Product Specialist, both at Martin Engineering, look at the case for global standards in conveyor safety.

Safety regulations are rarely arbitrary. They are generally based on a history of reported injuries and fatal accidents caused by a set of circumstances that both regulators and insurers deem dangerous enough to require explicit rules to prevent.

However, rules can vary drastically between countries (and even within countries) to such an extent that the definition of what is safe and unsafe can appear subjective – and in some cases, can present more design and safety issues than the regulation is attempting to remedy. An example is the concept of 'guarding by location'.

Guarding that is the result of the physical inaccessibility of a particular hazard under normal operating conditions is called guarding by location. Machinery may be safeguarded by location if the distance to dangerous moving parts is greater than the prescribed safety distance, which varies by jurisdiction.

Most people readily accept that conveyors and other machinery require safety guards when positioned near workers or walkways. Guarding by location is the

assumption that when hazards such as a moving conveyor belt are positioned beyond the normal reach of a worker, they don't require a guard. Yet they can still present a serious hazard.

HAZARDS FROM ABOVE

By not requiring a physical barrier, guarding by location creates what can be considered an exception to the general requirements for the guarding of hazards in the workplace. For example, The American Society of Mechanical Engineers (ASME) B20.1-2015 Safety Standard for Conveyors and Related Equipment notes in section 5.9.2(a): "Remoteness from frequent presence of public or employed personnel shall constitute guarding by location."

There are several hazardous locations that are beyond the normal reach of a worker when working or walking under or around elevated conveyors. These hazards are considered to be guarded by location, often found in or around nip points between the belt and return rollers or drive components such as pulley shafts, couplings, drive belts, gears and chains.

> "The practice of calling moving components on conveyors 'guarded' solely because their installation is at least a specific distance from the worker is outdated as a concept and ineffective in application. It should be discontinued

Additional hazards from falling components may be inadvertently ignored if considered guarded by location.

WORKER RISKS

By determining a general safe height for all locations, some workers may be safeguarded while others are not. Taller employees (1.82 m in height or more) can easily suffer an injury reaching up into a moving component that is 2.13mabove the ground. Working above machinery that is considered guarded by location exposes workers to increased severity of injury if they slip or fall to a lower level.

A fundamental problem for conveyor designers is the absence of specific global standards. Without uniform standards, equipment that is manufactured in one country to be installed in a second country may not be compliant for transfer or resale in a third country.

The variation on standards from 2.1-3.5m is too much to assure global compliance. Further, using tools and methods that extend a worker's reach while the belt is running is a hazardous activity that can contribute to serious – and possibly fatal – accidents.

GUARDING BEST PRACTICES

Exemptions such as guarding by location do not fully address the dangers explained above. As a result, rules defining the practice become ineffective as a safety measure, especially where belt conveyors are concerned.

Despite its acceptance in various regulations, the practice of calling moving components on conveyors 'guarded' solely because their installation is at least a specific distance from the worker(s) is outdated as a concept and ineffective in application. It should be discontinued.

The logical solution is to simply install guards and baskets to protect workers from lateral and overhead hazards, while still offering safe and easy access. For maximum risk reduction, all nip points, shear points and moving or rotating components should be guarded, regardless of location or access. Many vendors can fabricate and supply guards of all types to fit virtually any application needed.

All moving or rotating components should be guarded, regardless of location.

PUT AN END TO THE MYTH

Despite its nearly global acceptance as a concept in industrial safety, the practice of guarding by location remains a particular problem for overhead conveyor applications. It's time to accept that as far as conveyors are concerned, guarding by location is a myth. As such, it's a concept that should be abandoned in order to make conveyors – and those who work on and around the equipment – safer.

For more information, contact:
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CHOPPY WATERS

Industry experts shared their views on the dry bulk market at ABTO's recent Bulk Terminals 2022 conference in Riga

October's Bulk Terminals conference in Riga saw plenty of lively debate. When it comes to the dry bulk business cycle, Rahul Sharan, lead analyst, bulk shipping research at Drewry, told delegates that the expectation is that freight rates will go down somewhat next year.

As far as exports from Ukraine's war zone are concerned, the grain trade has been one of the most affected. Ukraine's share of the market has been consistent over the past few years, although fell due to a poor harvest in 2021. However, an increase of almost 25% is expected this year, to more than 50m tonnes, according to Sharan. Exports were very good during the first two months of the year, before the war started. The expectation is that grain exports will settle down and may catch up during the last quarter of the year, Sharan said.

Insurance issues may also resolve themselves as more insurers come forward that are prepared to insure cargoes from Ukraine.

When it comes to Russia, a poor harvest has had more of an effect on its export figures, rather than the war, Sharan said. Russia exports most of its fertilisers to the US and Brazil, but that trade has gone down, although it did not completely vanish. The surplus in Russian fertiliser is now going towards Asia. Other energy commodities have also followed the same pattern.

As far as International Maritime Organization regulations are concerned, these will have an impact on the situation, Sharan said. Regulations set to come in include the Carbon Intensity Indicator (CII) and the Energy Efficiency Existing Ship Index (EEXI). EEXI will have a drastic impact on the speed of vessels, although he said that in 2023 the dry bulk shipping might not see the effects because most vessels will be sailing at slower

speeds than the maximum allowed. When it comes to CII ratings for vessels, some may well be scrapped so again the effects of the new regulations may not been seen next year.

The fleet is not set to expand massively over the next few years, he said, with a sparse order book this year, in part because of the new rules coming in. Shipyard capacity has also been limited and will continue to be for the next couple of years.

Average annual charter rates are expected to be lower this year compared with 2021 and may also be lower next year due to uncertainty in the global economy. From 2024, a surge in charter rates is expected as the effect of the new regulations comes into play. Orders may well increase as a result of higher rates from 2025.

FLAT MARKET

William Fray, director at Maritime Strategies International (MSI), took an in-depth look at the iron ore trade. Iron ore and other minerals account for 42% of dry bulk trade and iron ore is the single most important commodity driving the dry bulk freight markets.

Iron ore trade has not moved much from a fairly flat profile since about 2017, Fray said. During the pandemic, the price of iron ore declined, but China stepped in to buy surplus iron ore at low cost, which meant a collapse of the market was avoided. The market improved when demand started to pick up again from other market players and China had its own issues with the property market.

The pace of urbanisation in China has had an effect on the market. China has a long-term goal of reaching a level similar to that of an advanced economy and is catching up very quickly, Fray told delegates. Once its targets for urbanisation are met, the pace of infrastructure development will go down and then iron ore requirements for steel production will go down, he said.

Fray explained that there are other reasons for concern about the iron ore trade other than those resulting from China's demand for steel to decline. The iron ore trade has been leveraged by a substitution of domestic iron ore for imports. The proportion of iron ore China consumes from imports has declined over time, which means that the rate of change of growth in iron ore imports has been higher than that of steel production growth. That has now changed, he says. That proportion of iron ore now being consumed from domestic production has flattened out.

In addition, the Chinese government is not taking action to support property developers as it has in the past, Fray said. MSI believes this is because energy costs are so high, as are raw material costs, and China can direct more construction towards the property market until energy prices fall and its covid-19 restrictions are lifted.

MSI predicts an iron ore trade growth of less than 1% next year, with little positivity about the longer term. Australia is most at risk as China replaces iron ore imports from there with other sources they have invested in.

The capesize segment is heavily dominated by iron ore and if iron ore declines, capesizes will have to move into other markets. Coal is one potential market, while bauxite has a very significant role to play in the longer term, with more products created using aluminium to save weight and therefore energy. China's bauxite resources are not particularly large and, at the current level of production, there is only about 12 years' supply left. Guinea is a possible alternative source for bauxite and any expansion here should support the capesize trade, although dynamics supporting the capesize market in the mid term are quite weak.

Meanwhile, congestion has been about 25% higher in the past couple of years, Fray told delegates: at the current level, it is aborbing the equivalent capacity for the whole of the iron ore trade from Australia to China. It has, however, led to a freight market for smaller ships. It is difficult to say when congestion will decline, but restrictions are being lifted rapidly and therefore port congestion will start to reduce in the coming year.

Taking into account the congestion issue, underlying demand for ships will be much weaker than trade growth forecasts would suggest. Freight markets may come under pressure in the next couple of years, he suggested.

KING COAL?

Coal was a dead commodity and several financial institutions tried to move away from coal, but "the news of coal's death has been exaggerated" **Basil Karatzas, founder of Karatzas Marine Advisors**, told delegates at Riga.

The price of thermal coal has increased substantially in recent times, he said. The market has been very beneficial to the dry bulk market as Australia has been shipping to Europe. In the short term, there is demand for coal in Europe, but there are also coal powered plants being built in India and China – despite the discussions on clean energy.

Fossil fuels are good enough for many countries, though, he said. The US has been exporting coal over the past decade, with an increase in recent years leading to spikes in prices on certain routes. There has been a lot of coal mining in the US, with a view to exports to Europe. There has also been a good deal of barge activity in the US for the export market.

Exports and imports have, like everything else, been affected by covid-19 restrictions. There has been a move towards other fuels, but with supply change disruptions caused by the pandemic and the invasion of Ukraine, coal is needed for winter heating. It would be hard to predict the demand for coal beyond 2023, Karatzas said.

Coal is one commodity where there is spare demand when the market is under pressure. The transition to cleaner energy will be more complicated than many people think, he explained. Despite the high prices for coal and fossil fuel products at the moment, mining and oil companies are reluctant to invest in expanding capacity and would rather pay the money to their investors as dividends and share buybacks. This is not good for consumers and industrial countries with a heavy dependence on energy sources.

THE SMART SET

Germany is boosting its investment in natural gas and other energy supplies, while smart software solutions are adding value to manufacturing customers

Germany is boosting its investment in natural gas and other energy supplies with an announcement that a new floating LNG terminal is planned in order to increase the amount of product that can be imported going forward.

The new project involves converting of a number of liquefied natural gas (LNG) tankers to act as floating LNG floating storage units as a means of reducing its dependence on Russian imports. It is estimated that each of the five mobile LNG floating terminals planned will be able to provide about 5bn cubic metres of gas per year, although some estimates put the figure as higher than this.

It is expected that the first two floating units will start operating this year with the other three to follow in 2023. "Together, the floating storage and regasification units alone can cover about one third of the current gas demand (base year 2021 – 90.5bn)," the energy ministry said in a press release.

The German government has also announced plans to transform the ports of Rostock and Lubmin in Mecklenburg–Western Pomerania state into energy ports, supporting the country's energy security strategy.

The federal government presented a future package for the transformation of east German refinery sites and ports in September, including package measures to develop the energy ports in Mecklenburg-Western Pomerania as well as the maintenance of the refinery of the PCK Schwedt and the refinery Leuna in Saxony-Anhalt.

"Mecklenburg-Western Pomerania is still willing to make its contribution to Germany's energy supply" Manuela Schwesig, minister president of Macklenburg-Vorpommern, says. "In the current situation, this means that oil should be imported to Germany via Rostock and liquid natural gas via Lubmin. We are very grateful that the federal government has launched an additional investment program. It enables investments in our ports, upgrading the pipeline from Rostock to the refinery in Schwedt, as well as long-term investments in the hydrogen economy."

"Mecklenburg-Western Pomerania will also benefit greatly from the future package," Reinhard Meyer, minister for economic affairs, infrastructure, tourism and labour, says. "We have worked intensively on this at the federal level. The focus here is on transformation investments in the infrastructure, especially for the expansion of the Rostock seaport and the advancement of various energy projects to further support hydrogen projects. Mecklenburg-Western Pomerania will make its contribution to securing Germany's energy supply."

> Thanks to smart software and data analytics, we can map and connect the entire customer process across different system structures and vendors. It's always about the big picture

BAGGING BOOST

Due to legal requirements, the Mexican cement manufacturer Cruz Azul has to change its production from 50 to 25kg bags in the future. In order to meet this logistical challenge, Cruz Azul has commissioned the German Beumer group to supply 14 high-capacity palletisers.

Cruz Azul must be able to bag, palletise and pack twice the quantity of cement bags in the future while maintaining the same production capacity. For example with a total tonnage of 150 tonnes per hour, 6,000 bags currently require more than 90 pallets. A pallet has to be handled every 40 seconds. One BEUMER system achieves an output of 5,500 to 6,000 bags per hour.

Covid-19 presented a particular challenge in this project. Due to the pandemic, it was not possible for Beumer experts to be on site with the customer in person. All concepts were discussed, debated and agreed online and with the support of the local group company in Mexico City.

The first five palletisers are expected to be delivered later this year. The other nine machines will follow by 2023.

Software solutions

Beumer is also investing in smart software solutions to the benefit of it's customers. Bodo Schlenker, divisional director of software solutions at Beumer, recently spoke about the company's activities in this area. "Our digital offerings strategically target the continuously increasing market requirements to be in a position to offer our customers substantial added value through smart software solutions.

"Data analytics are playing an increasingly important role to generate information in real time: 'What does the process look like?' 'What is the system state?' 'What is the system utilisation level?' The demand for software solutions in intralogistics is huge and will continue to increase in the years to come." He continues: "When it comes to supporting our customers, software is a very clear differentiating factor. They don't just want to buy a machine; they want a solution for their problem and it's precisely this solution that we look to provide. What does that mean for us? We can connect and network the physical world with the digital world through smart software solutions, connectivity, and data analytics, and to ensure end-to-end material and data tracking. The closer we are to the customer process, the better we can support users.

"Data analytics can be understood as an offer to visualise information relating to their operating processes for customers on site via control stations, to be preventive or even predictive. This is where the human machine interface really comes into its own. The systems we supply to our customers are relevant to processes in customer production and need to be highly available. This means that the machines need to be able to 'talk' to their environment.

"Of course, given the wide variety of machines, this is a serious challenge and requires the machines to be 'intelligent'. This is the only way to ensure that can data be generated, stored, and evaluated in a targeted manner.

"What this means for us is that it is important to shift more and more work to the network. After all, our machines do not always produce and work on their own as stand-alone solutions for our customers.

"Our machines are integrated or combined with other systems from OEM suppliers. It is always important to understand how the customer's end-to-end process works.

"Thanks to smart software and data analytics, we can map and connect the entire customer process across different system structures and vendors. It's always about the big picture. Equipping new machines with the intelligence they need is quite simple. Systems that are already in use at customers need to be prepared for upgrades step by step."

JOINT EFFORTS

Middle Eastern players have been getting together to explore joint opportunities in the area as a means of improving their competitive position in the marketplace, as well as building up their positions as regional hubs

AD Ports Group in Abu Dhabi has announced the signing of a Memorandum of Understanding (MoU) with leading port investor Hutchison Ports. Under the terms of the arrangement, AD Ports and Hutchison Ports will identify joint investment and business opportunities related to feedering, logistics and port activities across the Gulf Cooperation Council, Africa, and Asia.

In addition, the two port groups will form a partnership to operate within Tanzania, where they will work together to explore opportunities to further enhance the capabilities and market competitiveness of port operations across the East African country, including Dar Es Salaam Port.

Potential areas of focus include improving servicing to several of Tanzania's landlocked remote areas and neighbouring countries, cultivating more cargo sources, and the enhancement of existing supporting logistics and cargo processing facilities.

Captain Mohamed Juma Al Shamisi, managing director and group CEO, AD Ports Group, says: "We are pleased to announce the start of a new collaboration with Hutchison Ports. As a starting point, we will work together to enhance and elevate Tanzania Port's standing as a world-leading trade hub. AD Ports Group will advance plans to develop and implement an innovative logistics, transportation, and digital port management system, as well as investing in the development of new infrastructure, such as logistics centres and new inland container depots around Dar Es Salaam Port."

Eric Ip, group managing director of Hutchison Ports, comments: "Having operated in Tanzania since 2001, we are very committed to this market

and its great potential. With strong support from local partners and the addition of AD Ports Group, this new partnership will certainly be greater than the sum of its parts.

"Together, we look forward to working closely with the Tanzania Port Authority to further develop Tanzania International Container Terminal Services as we strive to ensure Dar Es Salaam Port remains the premier gateway to the East African region."

First shipment

AD Ports has also announced the arrival of the first international shipment at Mugharraq Port, one of the high-performing ports located within the Al Dhafra Region.

This is the first shipment since Mugharraq Port was recognised as an international port facility under the provision of the International Code for the Security of Ships and of Port Facilities (ISPS Code) by the United Arab Emirate's Ministry of Energy and Infrastructure.

International recognition was achieved after a series of major upgrades at the port, including the extension of the quay wall up to 480m with additional berths, deepening of the facility's depth to 8m, as well as the development of additional Ro-Ro ramps.

Mugharraq Port's enhancements, coupled with its strategic proximity to Ruwais, Hail, Ghasha, and other key upstream oil and gas projects in the region, further solidify its position as an international ship and port facility security port well-equipped to meet the evolving need of international operations.

The port has long served as a leading maritime facility, offering a host of offshore, oil and gas, general cargo, logistics support, bulk, and break-bulk handling services. It connects nearby Delma Island via RoRo and ferry services. Ongoing extension work at the port, as well as the new international port certification, will support the wider long-term development plan for the Al Dhafra region.

Saif Al Mazrouei, CEO, ports cluster, AD Ports Group, says: "The arrival of our first international shipment is a significant milestone for the expansion of new international business opportunities and will enhance Abu Dhabi's position as a global trade hub.

"The recognition of Mugharraq Port as an international port will provide significant support to development within the Al Dhafra region, and also enable the creation of new trade routes connecting the UAE to the world."

Mubarak Al Mazrouei, acting managing director, Mussafah Port and Al Dhafra Region, AD Ports Group, says: "It is our great pleasure to welcome the first international shipment at Mugharraq Port, a testament to our commitment to the ongoing development in the Al Dhafra region – catering to both commercial and recreational maritime activities.

"Our international certification will support the development of Mugharraq Port's logistical capabilities, especially in the global energy market, while supporting AD Ports Group's aspirations to position the port as a key player in global trade."

Khalifa Port expansion

AD Ports has also seen the first 90-tonne block for the quay wall of the new CMA Terminals Khalifa Port being laid at a special ceremony.

Announced in September 2021, the development of the new terminal is on track with budgeted capital expenditure of AED3.3bn. The terminal is expected to be operational in the first half of 2025 and will be managed by a joint venture owned by CMA Terminals (70% ownership), a subsidiary of global shipping and logistics giant CMA CGM, and AD Ports Group (30% ownership).

AD Ports Group is developing a wide range of supporting marine infrastructure for the terminal, which will provide CMA CGM with a new regional hub.

When the quay wall is complete, the signed block will be one of more than 6,000 within the 19m-deep berth pocket and will be able to accommodate the world's largest container vessels. Other facilities under development include a 3,500m offshore detached breakwater, a fully built-out rail platform, and 1,000,000m^2 of the terminal yard.

Once ready, the new terminal will have an initial capacity of 1.8m TEUs, will be fully integrated with Etihad Rail and will significantly enhance Khalifa Port's connectivity and position as a key gateway for the region.

Saif Al Mazrouei says: "This is a key moment in the development of the new terminal in Khalifa Port, which will drive increased trade volumes and add new trade links with other high-profile ports, boosting the United Arab Emirate's economy. The scale of this 1,200metre quay wall is indicative of the ambition of this project, which will create a major hub for CMA CGM, one of the leaders in shipping and logistics, supported by cutting-edge technology and services.

"With the arrival of CMA CGM, Khalifa Port is now providing hubs for three of the world's top four shipping lines, consolidating our position as a leading facilitator of trade, logistics and industry."

Michael Lund Hansen, CEO of CMA Terminals Khalifa Port, says: "This is an important moment for our company and our partners, as work continues to develop this new terminal, which will expand our group's shipping and logistics network in the region.

"Khalifa Port is a leading global hub that supports trade flows in and out of Abu Dhabi. With our new terminal and the shipping line services it will attract, Khalifa Port will see increased connectivity to global markets and further development of multi-modal logistics facilities, and advanced port infrastructure."

David Gatward, chief engineering and technical services officer, AD Ports Group, adds: "We have made strong progress in the development of CMA Terminals Khalifa Port. In addition to initiating construction of the quay wall, other ongoing marine works including the reclamation of land for the new terminal, construction of a new port basin and an offshore detached breakwater are on track.

"Recently, the contract for the design and construction of a 33kV substation was awarded as well. The ongoing development and expansion

at the terminal will increase our container handling capacity and boost operational efficiency."

Khalifa Port is one of the world's most technologically advanced ports, with the first autonomous transport truck system in the Middle East, automated stacking cranes, aerial drones, a 360-sensory system, and an automated terminal operation system.

IRAQI TERMINALS CONTRACT

Safeen Group and Amaan Baghdad Company have signed an agreement to support a new project relating to fuel oil transport and storage from Khor Al Zubair and Umm Qasr oil terminals in Iraq.

The project represents a significant extension of Safeen Group's portfolio of dedicated products and services into the oil and gas sector and is part of its ongoing expansion in the key market of Iraq.

Under the terms of the agreement, Safeen Feeders, a subsidiary of Safeen Group, will manage the entire project, providing three very large crude carriers (VLCCs) and one medium-range (MR)tanker.

Working with Amaan Baghdad Company, Safeen Feeders will transport fuel oil from terminals in Port of Khor Al Zubair and Umm Qasr South Port to Iraqi territorial waters using the MR tanker. The fuel oil will then be transferred and stored on the VLCCs, which will serve as floating fuel tanks with monthly delivery capacity of 750,000 tonnes.

The agreement is secured at competitive rates, providing flexibility for the Iraqi partners, and ensuring a favourable rate of return for Safeen Group, which will not engage CapEx in this transaction.

Captain Ammar Mubarak Al Shaiba, acting CEO of the Maritime Cluster and Safeen Group, says: "We are pleased to complete this new agreement to support a major fuel oil transport and storage project in Iraq. The energy sector is an important growth market for Safeen Group, and this project demonstrates our expertise in this area as well as the extent and sophistication of our fleet.

"Safeen Group is expanding its global footprint to provide key maritime services to companies around the world. This agreement underlines our capacity to tailor solutions to the specific needs of companies in the oil and gas industry and marks an important extension of our presence in Iraq."

Fadie Fouad, chief executive of Amaan Baghdad Company, says: "We have selected Safeen Group based on its comprehensive suite of world-class marine services and the expertise of the dedicated team who will manage this project. The global fuel oil market has been volatile in 2022, and this additional storage capacity will support Iraq's competitive offering."

In addition to this new agreement, Safeen Feeders supports a weekly container service that connects Iraq with global markets. The company continues to look for opportunities to support the growth and diversification of maritime trade for Iraq.

AQABA BOOST

APM Terminals has been boosting its activities in the Jordanian port of Aqaba, with a new agreement with Aqaba Container Terminal.

An MoU was signed between APM and the Aqaba Development Corporation in September outlining the ambitious plans for the port and a 15-year extension of the partnership in ACT to ensure the long-term transformational investments required to ensure Aqaba Container Terminal continues to lead the region are accelerated.

The Aqaba Development Corporation was launched in 2004 to unlock the potential of the Aqaba Special Economic Zone.

Chief executive of APM Terminals, Keith Svendsen, introduced the key aspects of the company's future vision for the Aqaba port, which include ambitious decarbonisation plans, the modernisation and expansion of ACT, the development of a training centre for individuals working in the maritime and logistics sectors, and ongoing support for Jordan's goal of becoming an export hub for green energy.

Commenting on the occasion, Svendsen, says: "Aqaba is considered one of APM Terminals' major strategic ports, and an important gateway to the Levant region and beyond. To reinforce our long-term commitment to Aqaba and to Jordan's 2030 Economic Modernization Vision, we have developed a meticulous plan for enhancing Aqaba's competitiveness both regionally and globally including a net zero emission target for 2040 – the only port in the region with such."

Vijay Rangachari, regional managing director for Maersk Training, says: "We are looking forward to the establishment of a centre of excellence for the logistics and maritime industry, which will play a pivotal role in developing the skills of the sector's current and future professionals, supporting growth and progress for Jordan and across the Levant.

"Students enrolled in the centre will have the opportunity to be an integral part of Aqaba's transformation, allowing members of the local community to take a more active role in these exciting changes. Leveraging our robust global expertise and resources, we look forward to exploring with key stakeholders how we can support in building a skilled workforce not only in the local market, but according to global standards and benchmarks."

Head of decarbonisation for AP Moller – Maersk Morten Christiansen adds: "AP Moller - Maersk will be supporting Jordan in every way we can during its long-term energy transition journey. We would be proud to lend our company's knowledge, large demand for green fuel, and expertise to helping the kingdom enhance its positioning as a producer and exporter of green fuel."

CHLORINE EXPLOSION

Investigations have been underway in Aqaba following a chlorine gas leak which resulted in the deaths of 13 people and hundreds of injuries at the port at the end of June.

Senior officials at the port were dismissed following the accident, resulting from a crane failure while a tank was being hoisted from a truck.

TOP OF THE CROPS

Unsurprisingly, given the war in Ukraine, grain has been a key commodity in recent months and a dominant segment in the Australian market

A record Australian grain harvest in 2020-21 exposed issues with regulation of grain ports, according to the Australian Competition & Consumer Commission (ACCC).

A commission consultation with the bulk grain export industry showed recently that grower representative groups and some exporters generally support regulation of bulk grain export supply chains, but port terminal operators in the main do not. Grain exporters are, however, concerned about a lack of transparency in the way that port operators allocate capacity to them.

The ACCC's *Bulk grain ports monitoring report – industry update*, published recently, summarises the views of Australia's bulk grain export industry in the wake of the 2020-21 shipping year, which was a record year. It complements the *Bulk grain ports monitoring report – data update*, released in December 2021, which provided data on bulk grain exports.

A key issue the ACCC consulted on was the suitability of the Bulk Wheat Code of Conduct, which is the regulation that ensures bulk wheat exporters all have fair and transparent access to port terminal services.

"The bulk grain export industry has undergone some significant changes over the last five years, so we need to consider whether the current regulation of exporter access to port terminals is still fit for purpose," ACCC deputy chair Mick Keogh says.

"In recent years, we've seen an increase in the number of port terminal service providers, a higher percentage of non-wheat grain bulk exports, and, at some ports, an increased market share of grain shipments by exporters associated with companies that operate the port terminal facilities."

"While the grains industry has mixed views about the effectiveness of the current code, it's clear it isn't working optimally and a review is needed. The ACCC is especially mindful of the regulatory burden the code imposes on new port terminals," Keogh says.

The Australian government first reviewed the code in 2017 and is currently required to commence a second review this year. The ACCC believes that, given developments in the market over the past five years, government and industry would benefit from a detailed review that considers whether the current regulatory approach is fit for purpose, and what changes are needed.

Consistent with the record year for bulk grain exports in 2020-21, port terminal service providers told the ACCC they experienced unprecedented demand for capacity.

"The massive harvest in season 2020-21 resulted in the largest ever volume of bulk grain exports, so it was a good test of both port capacity and the impact of reduced regulation in these markets over the past few years," Keogh says.

Several exporters raised concerns about access to port terminal facilities in 2020–21 and some of the smaller exporters said capacity constraints at established port facilities forced them to seek access at new ones or rely on mobile ship loaders.

However, some exporters say that mobile loader operations are not perfect substitutes for fixed loader operations, and they questioned their value outside of high-demand years when capacity at larger facilities is constrained.

The ACCC's *Bulk grain ports monitoring reports* detail the nature and concentration of export activity and capacity allocation at Australia's bulk grain port terminals. The reports are produced annually as part of the ACCC's monitoring role on the effect of further deregulation of the industry and greater competition that has emerged between some port terminals.

GEARING UP FOR GRAIN

T-Ports is gearing up for the 2022 grain harvest, its fourth since introducing innovative technology.

T-Ports Chief executive officer Scott McKay says feedback from Yorke Peninsula and Mid North growers indicated strong support for new competition in the supply chain.

"We have been meeting with growers over recent weeks and we're pleased to be able to tell them we'll be ready to receive their grain this year," he says.

"Construction on the bunker site and work on the port site is on track. We expect shipping from Wallaroo to commence later in 2023 and have been in regular communication with our clients to update them on the timelines."

McKay says the company had recently started accepting shipping capacity applications for the 22/23 season, with seven buyers now on board at T-Ports sites.

"We'll be using the same transshipment vessel, *MV Lucky Eyre*, for shipping grain from Lucky Bay and Wallaroo and will look to manage logistics accordingly," he says.

"At this stage, we're accepting bookings for shipping from Lucky Bay and strong demands for expressions of interest for Wallaroo while we work to confirm timeframes."

McKay says that while the company had only made minimal price increases over its first years of operation, an increase in costs meant an unavoidable increase in port handling and shipping charges this year. "Unfortunately, the reality of doing business in 2022 is that the cost of everything in construction and operations has increased – labour, materials, fuel, accommodation, repairs, maintenance– and we can no longer absorb these costs," he says.

"The silver lining is that grain prices remain strong, and the season looks on track to deliver average to above-average yields.

"We're continuing to engage with our key client and grower stakeholders to reinforce our commitment to delivering innovation, competition and value for money."

The Wallaroo grain export facility will feature steel silos with 20,500 tonnes of grain capacity and a rock causeway with grain conveyed to a ship loader for loading onto the transshipment vessel. A nearby site will feature six bunkers with a total of 240,000 tonnes of grain capacity.

SAFETY ALERT

The Australian Maritime Safety Authority (AMSA) has issued a safety alert on the importance of planned maintenance in ensuring safe operation of domestic commercial vessels

Planned maintenance is essential on domestic commercial vessels. Good maintenance work in port or at anchor can help avoid breakdowns and getting into hazardous situations at sea

Recent incidents have demonstrated the potentially serious consequences of a lack of effective maintenance that can pose serious risks to the safe and operation of vessels.

Analysis of 117 incident investigations since 2020 found that maintenance problems were a factor in 28% of incidents, including half of very serious incidents and 27% of serious incidents.

Maintenance needs to be planned to suit the vessel, the type of operation and potential risks, AMSA says.

There are a wide range of domestic commercial vessels and types of vessel operations. In many cases, breakdowns and equipment failure can present significant risk. Factors that can increase the consequences of breakdown could include:

- lengthy voyages from port
- operation in deep water where anchoring is not possible
- weather conditions and potential for change

» operation in remote areas where parts and assistance are not available
» operation in high traffic areas where anchoring or drifting may be dangerous.

As well as safety risk, breakdown and equipment failures can present serious economic and reputational risks to businesses. This is particularly so for passenger vessels and hire and drive operations.

Most engines and equipment have documented recommendations on maintenance schedules and requirements. These should be used to guide development of planned maintenance schedules documented in each vessel's safety management system (SMS).

Maintenance schedules can also be built around seasonality in the vessel's operations. For example, commercial fishing closures and times outside tourist season can provide ideal times for major maintenance.

"AMSA recognises that several factors presented challenges to effective maintenance during the covid-19 pandemic restrictions. These included supply chain difficulties in getting necessary parts and specialist expertise to affected vessels and shutdowns of some operations such as tourism and some commercial fishing.

"However, with travel restrictions and quarantine requirements now largely removed in Australia, AMSA expects operators to have resumed effective maintenance action."

A key component in any planned maintenance schedule is periodic checking of safety gear. Life jackets and life rafts should be checked for wear and tear. Monitoring expiry dates of safety equipment and some first aid kit items is essential. These can either be checked regularly or by building expiry date alerts into electronic or paper calendars or diaries.

Under the National Law for Domestic Commercial Vessels, Marine Order 504 explains the requirements for safety management systems (SMS). It sets out that:

» The owner of a vessel must ensure that a system of regular programmed inspection and maintenance appropriate for the vessel, its machinery and its equipment is developed, maintained and implemented.
» The SMS must include arrangements for recording details of each inspection and correcting each deficiency identified by an inspection. The record may be kept in the logbook.
» The vessel must be inspected sufficiently to determine if the vessel, its machinery and its equipment complies with the maintenance and operation requirements that apply to it. This requirement does not prevent inspections being made for compliance with voluntary maintenance guidelines.
» The vessel must be serviced taking into account the manufacturer's specifications and requirements.

Under Marine Order 503, it is a condition of a Certificate of Survey that a certificate of currency relating to equipment that is required to be carried on the vessel must be kept current.

> Without clinker, industry stops and every tonne of the commodity entering Western Australia comes through Kwinana Bulk Terminal'

CLINKER SUPPORT

Fremantle Ports announced in September that work was shortly to begin on a new $55m clinker import circuit facility at its Kwinana Bulk Terminal in the Outer Harbour.

The clinker facility will streamline the importation of clinker – the principal element in the manufacture of cement – and consist of a storage dome nearly 40m high and a covered conveyor network. The dome will be the first of its type in Australia.

More than 1.1m tonnes a year are imported through Kwinana Bulk Terminal, destined for domestic, commercial and industrial construction projects throughout the State. Around half comes from Indonesia, with the remainder from Japan, Malaysia, Philippines and the United Arab Emirates.

Fremantle Ports chief executive Michael Parker says the new clinker circuit would link directly to the adjacent Cockburn Cement plant and also deliver efficiency benefits to the state's other major clinker importer, BGC.

"Without clinker, industry stops and every tonne of the commodity entering Western Australia comes through Kwinana Bulk Terminal," Parker says.

He adds that the storage dome would be able to hold an entire shipment of clinker – around 40,000 tonnes – with this project replacing cargo-handling assets that do not have the same capacity and are near end-of-life.

With construction starting next month, the new assets are scheduled to be in use by the second quarter of 2024.

"This is a very exciting investment, because it not only offers our customers improved efficiencies and supports the construction industry in WA, but cargo-handling will be faster, meaning there will be gains for our customers and also in terms of ship turnaround times at berth," Parker says.

Fremantle Ports was not only heavily involved in the Westport project planning for the transition of the container trade from Fremantle to Kwinana, but also working on a number of proposals to upgrade outer harbour facilities, at both Kwinana Bulk Terminal and Kwinana Bulk Jetty.

The clinker project was the latest in a succession of new developments in the Kwinana industrial area, benefitting local communities and supporting jobs, Parker says.

"Our aspiration is to provide the most reliable, safe and sustainable facilities through which importers and exporters can conduct trade."

UP FOR THE CHALLENGE

Recent years have been challenging ones for North American ports on both the east and west coast, given the pressures put on services by covid-19 restrictions and supply chain pressure, among other difficulties

The Great Lakes and St Lawrence Seaway has been described as a means of reducing pressure on the movement of freight through the pandemic period and there are a number of initiatives planned going forward.

High fuel prices have led market players to seek short-haul alternatives to services, among other trends. Using the St Lawrence Seaway has been considered as one means of reducing supply chain problems resulting from congestion in the port network.

As an indication of activity from the seaway, cargo volumes for commercial shipping through the St Lawrence Seaway System through August pointed to robust steel and aluminium shipment activity throughout the 2022 season to date, according to The Great Lakes Seaway Partnership.

"Much as it has throughout my 27 years of service to the Seaway Development Corporation, Great Lakes port activity in August highlights the critical role that the Seaway's maritime supply chain plays in delivering steel in support of the Midwest manufacturing sector," says Craig Middlebrook, deputy administrator at the Great Lakes St Lawrence Seaway Development

Corporation. "The resilience of this shipping lane is a testament to the innovation and investment made by the bi-national Seaways and our Great Lakes ports to maintain the Seaway System as one shippers can rely on."

The Seaway System moved 1,300,000 metric tonnes of steel, a nearly 4% increase compared with the same point in 2021. US grain shipments also remain relatively high, with 557,000 metric tonnes moved in August, an increase of almost 30 % from last year.

It is estimated that US Great Lakes ports traded with at least 23 countries during August, compared with 27 in July.

The tonnage report for traffic through the St Lawrence Seaway through July showed a continuation to a steady 2022 shipping season.

"As the season progresses, the Great Lakes-St Lawrence Seaway System continues to provide shippers a reliable route for a diverse range of commodities flowing in and out of the US heartland," says Middlebrook "Cargo numbers continue to improve thanks to the dedicated workers at our ports and on the vessels who are keeping essential products like grain and steel moving efficiently through the Seaway's maritime supply chain."

Between the start of the shipping season and the end of July, the Seaway System moved 514,000 tonnes of grain, marking a nearly 37% increase compared with the same period in 2021. This increase highlights the ongoing demand for US grain shipments in response to food shortages caused by the conflict in Ukraine.

VANCOUVER SHOWS RESILIENCE

Diversified cargo sectors supported mid-year trade results through the Port of Vancouver amid grain harvest, flooding, and supply-chain challenges.

The Vancouver Fraser Port Authority recently released 2022 mid-year statistics for goods moving through the Port of Vancouver. Overall, cargo declined 11% to 68.3m from 76.4m metric tonnes (MMT) compared with the same period last year, reflecting impacts of a poor Canadian grain harvest, congestion caused by 2021 flooding in British Columbia (BC), and global and national supply-chain challenges.

"As global ports continue to face an array of supply-chain challenges, Vancouver's port community has met the complex and layered challenges of early 2022 with resourcefulness and tenacity," says Robin Silvester, president and CEO of the Vancouver Fraser Port Authority, the federal agency mandated to enable Canada's trade through the Port of Vancouver.

"I'd like to recognise and thank everyone across Canada's largest port and the supply-chain for their exceptional efforts this year, as we work together to overcome challenges and drive this port's resiliency and success for the long term."

After a two-year hiatus owing to pandemic restrictions, in April 2022 Vancouver's port community and tourism industry partners celebrated the restart of cruising in Vancouver and in Canada. In the first half of the year, 119 cruise ships called at Canada Place cruise terminal at the Port of Vancouver, a 10% increase in ship calls over the same period in 2019.

In recent years, the port's grain sector, including both bulk and containerised grain, has been on a strong growth trajectory, achieving new records for total grain shipped every year from 2013 to 2020, and a resilient total volume in 2021, despite supply chain disruption from wildfires and flooding last year and reduced harvest volumes due to drought in the prairies.

For the first half of 2022, however, overall grain volumes decreased by 60% over the same period last year due to the poor Canadian grain harvest in 2021, plus a sell-off of grain stores last year in response to high grain prices. Similarly, canola oil decreased by 62% through mid-year, due to the low-yield harvest.

"Grain has been a major growth story for this port for nearly a decade, and while we've been seeing the impact of the 2021 harvest this year, we expect to see volumes returning as of this fall, based on industry projections of a stronger 2022 harvest," Silvester says.

In the first half of the year, sulphur increased by 20% due to higher overseas demand. With the rebound of travel, aviation and jet fuel increased by 179%. Potash increased by 1% as a result of increased global demand amid restricted market access to Russian and Belarussian potash. Also, through the mid-year, disrupted global semiconductor production and supply chains, coupled with softening demand, contributed to a 20% decline in auto volumes.

While Canadian consumer demand for containerised goods remains high, container volumes were down by 7% at mid-year, reflecting impacts from supply-chain disruption related to 2021 flooding in BC coming into the year, as well as challenges caused by at-capacity warehouses at inland terminals such as Toronto, which have affected trade through Vancouver.

Although this sector continues to face some near-term supply-chain challenges, Canada's west coast container trade remains on a long-term growth trajectory, averaging 5% growth annually for the past decade, and west coast terminals are projected to reach capacity by the mid – to late-2020s.

To meet Canada's coming capacity needs for containerised trade, the port authority is leading the Roberts Bank Terminal 2 Project, a proposed marine container terminal in Delta. The project is in the final stages of a federal environmental assessment process. If approved, the terminal will be a critical link for Canada's supply chains, increasing container terminal capacity by more than 30% on Canada's west coast, supporting competition in the gateway, and strengthening reliable access to goods Canadians use every day.

"If we consider our short- and long-term challenges at Canada's largest port, the solutions are the same," Silvester says. "To provide resiliency in the face of supply-chain disruptions and to be able to support long-term growth from a position of strength, we need to continue building capacity, efficiency and resiliency throughout the port and its supply chains. Roberts Bank Terminal 2 is an essential part of that."

WIND POWER BOOST

A proposed six-turbine wind energy project in Lake Erie has received a favourable decision from the Ohio Supreme Court, which recently ruled the project may proceed. The Court held the Ohio Power Siting Board properly issued a permit that allows construction of the project, dubbed Icebreaker Wind, to move ahead.

Icebreaker is projected to have a $253m local economic impact and create more than 500 jobs.

Writing for the Court's 6-1 majority decision, Justice Jennifer Brunner explained that the siting board collected the necessary research to allow Icebreaker to begin construction, while also requiring more data before the company can operate the turbines.

"Rather than requiring Icebreaker to resolve those matters before issuing the certificate, the board determined that the conditions on its grant of the application were sufficient to protect birds and bats and to ensure that the facility represented the minimum adverse environmental impact," Justice Brunner wrote.

The ruling provides the Lake Erie Energy Development Corp (LEEDCo) additional certainty so that it can market Icebreaker's power to potential customers. One-third of the power is already under contract with the City of Cleveland and Cuyahoga County and with its permit secure, LEEDCo can now focus on marketing the remaining two-thirds of the electricity it will produce.

Will Friedman, President and CEO of the Cleveland-Cuyahoga County Port Authority, said the ruling – while expected – was nonetheless welcome news."The Court's decision preserves the economic potential this project can unlock for the region." Friedman said. By one estimate, there will be $70bn in the offshore wind business pipeline in the US by 2030.

"Other states are nipping at our heels to attract offshore wind and its economic benefits. We don't want to squander this opportunity and let 15 years of work slip away to other states eager to capture market share."

Icebreaker Wind has faced unprecedented review from regulators for more than a decade, and has now received the necessary approvals from more than a dozen local, state and federal agencies – as well as sign-off from the state's highest court. The project has also overcome a number of obstacles – many of them placed in the project's path by fossil fuel interests.

Cleveland Mayor Justin Bibb said he believes renewables like Icebreaker Wind bring "a great opportunity to grow the wind industry locally as well as provide access to renewable energy for businesses and residents of Cleveland and the region. This project has always been a win-win for our economy and for our environment. Let's position ourselves to be a leader, not a follower, to other states."

OSHAWA PORT EXPANSION

The Hamilton Oshawa Port Authority (HOPA) is obtaining funding from the federal government to support the Port of Oshawa expansion plan.

The $14m contribution, to be drawn from the National Trade Corridors Fund, was announced by Transport Minister Omar Alghabra recently. It will be added to a $16m investment from HOPA for the $30m project to extend the marine infrastructure in Oshawa to accommodate two docked vessels, improve loading and un-loading times, expand storage capacity with the addition of a new grain silo, upgrade roads and improve stormwater management.

"At a time when we are all concerned about the resilience of the supply chain and the need to quickly, efficiently and safely get goods to market, this is welcome support," says Ian Hamilton, HOPA president and chief executive Officer. "A strong Port of Oshawa is important to growing industry across Durham Region and will be particularly important for farmers in the area. We are grateful for the support of Transport Canada and the collaboration of our local stakeholders to bring these planned improvements to fruition."

The Port of Oshawa Export Expansion Plan will address infrastructure deficiencies at the Port's East Wharf to increase Canadian exports, improve the efficiency of the port and the performance of the transportation system in the port's catchment. In particular, the planned improvements will better support grain farmers in Central Ontario, offering a more practical transport solution than trucking their grains across the Greater Toronto Hamilton Area.

Over the coming decades, the growth of Ontario's grain production for export is expected to increase by two million metric tons, with at least 300,000 metric tons expected to be grown within the Port of Oshawa's catchment area.

Improving grain storage and

upgrading the terminal at the Port of Oshawa is expected to remove an estimated 12,000 long-distance heavy truck trips from local highways.

"The great City of Oshawa is thrilled to see this federal investment that supports local jobs in our community," says Oshawa Mayor Dan Carter. "With this announcement, Oshawa takes another major step towards solidifying itself as an environmentally sustainable multimodal transportation hub and global gateway to the Greater Toronto Area, one of the largest markets in North America."

CHEERY NOTE

In its October meeting, the Port of Cleveland's board of directors approved a $3.75m contract with Arup Engineering to undertake the design and permitting services needed to proceed with the transformational Cleveland Harbor Eastern Embayment Resilience Strategy (Cheers) project.

"We're excited to be moving forward into the design phase of this transformational and vital project that will benefit Northeast Ohio communities for generations to come," says William D. Friedman, president and CEO of the Port.

Cheers project partners include the City of Cleveland, Ohio Department of Transportation, Ohio Department of Natural Resources, Black Environmental Leaders Association, Cleveland Metroparks and the Port of Cleveland.

Work is funded through a combination of matching funds provided by each partner and grant funding from the National Fish and Wildlife Foundation's National Coastal Resilience Fund and the Maritime Assistance Program.

"We're thrilled to move the Cheers project into the design phase and create a more resilient, equitable and prosperous lakefront," says Cleveland Metroparks CEO Brian M Zimmerman.

"The project will be transformational for Cleveland's East Side by protecting critical infrastructure, improving park access, and expanding natural habitat along the Lake Erie shoreline."

Arup was chosen after a request for proposal was released in March and a review of the submissions was made by Cheers partner organisations, determining that Arup was the most qualified firm for the project.

BACK IN BUSINESS

The Hansen-Mueller Company has finalised acquisition of General Mills Elevator A in Duluth, Minnesota, completing a deal that will bring the grain-handling facility back into active service.

Owned previously by General Mills and inactive since 2015, Elevator A becomes the second Hansen-Mueller-owned grain complex in the Twin Ports, joining the Daisy Elevator and Elevator M complex in Superior, Wisconsin.

Elevator A stands 56m above the harbour, with a 3.5m-bushel storage capacity. Consolidated Elevator Company built the structure with ceramic tile, brick and concrete in 1908, replacing the original wooden elevator constructed on the site in 1894.

General Mills purchased the elevator from Consolidated in 1943, modernising it in the 1970s and operating it until 2015. The site includes a 580m dock, with a slip depth of 8.5m, and on-dock rail service from BNSF Railway.

The facility will import and export primarily small grains grown in the US and Canada to domestic and foreign destinations.

"The facility fits our portfolio very well and will complement our import and export program, as well as our interior grain assets and processing plants," says Paul Johnson, Hansen-Mueller vice president and chief operating officer. "We are excited to grow our business in the Port of Duluth-Superior, and bring new business on to the St Lawrence Seaway."

The reactivation of Duluth's Elevator A is expected to generate added revenues and increasing grain tonnage through the Port of Duluth-Superior.

"Elevator A is a valuable asset in our port, with its grain-handling capacity, excellent road and rail connections, plus a long, solid, Seaway-depth dock for ships, and we're excited for its potential," says Kate Ferguson, Duluth Seaway Port Authority director of trade and business development.

"We've been looking for the right match to put that asset back into active use, and Hansen-Mueller proved to be that match. It was a process working together with Hansen-Mueller, General Mills and BNSF, which owns the land on which the elevator is built, and we're appreciative of everyone's efforts that brought us to this exciting announcement for Hansen-Mueller, the Port of Duluth-Superior and the Duluth Seaway Port Authority."

Approximately 800 vessels and 35m short tons of cargo move through the Port of Duluth-Superior each year, making it the Great Lakes' largest tonnage port and one of the nation's top 20. The Port supports nearly 8,000 jobs and contributes $1.4bn in business revenue to the regional economy.

POWER POINTS

Tackling energy demands will be a key consideration for all countries and the Netherlands is no exception as the country moves to explore new supplies and alliances

Spanish oil and gas company Cepsa and the Port of Rotterdam are to work together to establish the first green hydrogen corridor between southern and northern Europe, ensuring a green hydrogen supply chain between two of Europe's main ports, Rotterdam and Algeciras, as agreed in a Memorandum of Understanding (MoU) signed by both parties.

The agreement accelerates the decarbonisation of heavy industry and maritime transport and supports Europe's energy independence and security. It also strengthens Cepsa's ambition to become a key player in green hydrogen production in Europe and the leader in Spain and Portugal.

The co-operation is part of Rotterdam's ambition to supply Northwest Europe with 4.6m tonnes of green hydrogen by 2030. Cepsa plans to export hydrogen produced at its San Roque Energy Park near the Bay of Algeciras, through hydrogen carriers such as ammonia or methanol, to the Port of Rotterdam.

Rotterdam handles 13% of European energy demand, while the Port of Algeciras is first in Spain, fourth in Europe, and an important trade route between Europe and Asia.

With the Dutch government's support, and as part of Rotterdam's energy transition plans, the port authority and many private companies active in the port area are developing the necessary infrastructure and facilities for the import of green hydrogen and its distribution into Northwest Europe connecting large industrial centres in the Netherlands, Belgium and Germany by means of hydrogen pipelines. Cepsa is the main energy company in Algeciras, close to Gibraltar.

This supply of green fuels will help to decarbonise industry and maritime transport in the Bay of Algeciras and Rotterdam and to support the European Union's RePower EU strategy, which seeks to guarantee Europe's energy independence and security and stimulate the production of clean energy.

The trade lane is expected to be operational by 2027. Cepsa also intends to develop a similar supply chain from its La Rabida Energy Park in Huelva.

Maarten Wetselaar, CEO of Cepsa comments: "The opportunity to build the first green hydrogen corridor in Algeciras, the leading energy port in Spain, demonstrates the unique role that Spain, and in particular Andalusia, will play in the energy transition in Europe.

"Spain is ideally placed to become a world leader in the production and export of green hydrogen, given its strategic location, abundant generation of renewable energies, and its robust energy infrastructures and key ports, such as Algeciras and Huelva. Cepsa, the main energy company in Andalusia, intends to play a leading role in realizing this vision.

"This agreement is an example of the important collaborations necessary to bring about the energy transition in Europe and to ensure secure and independent energy supply. Cepsa will continue to explore further partnerships in which we can accelerate Positive Motion and the roll out of green hydrogen and biofuels across the continent."

Under its Positive Motion strategy, Cepsa aims to lead green hydrogen production in Spain and Portugal by 2030 with a production capacity of 2GW, half the current target set by the Spanish government, and to become a major player in Europe.

To generate the renewable energy necessary for its production, Cepsa will develop a portfolio of 7 GW of renewable, wind and solar projects alongside working hand in hand with other renewable energy producers in Andalusia to promote the integration of these new plants into the electricity system.

Allard Castelein, chief executive of the Port of Rotterdam Authority comments: "Northwest Europe uses far more energy than it can produce in a sustainable way. We are therefore setting up multiple trade lanes for green hydrogen, together with exporting countries and private businesses all over the world. We expect that in 2050 some 20m tons of hydrogen will flow through the port, of which only 2m tons will be produced locally.

"Southern Spain with its abundant space, sun, wind and ports is a logical location to produce green hydrogen for both local use and export. Setting up this trade lane between Algeciras and Rotterdam is a substantial contribution to Europe's ambition to reduce CO_2 emissions as well as increase Europe's energy independency and stimulate our economies."

Hydrogen is one of the priorities in Rotterdam's Energy Transition plans, with Port of Rotterdam working on setting up the infrastructure and facilities for facilitating hydrogen flows by co-developing a number of large projects with its port community members and connected industrial areas in northwest Europe.

In collaboration with exporting countries and the cluster of companies operating at the port, it can supply north-western Europe with 4.6m tonnes annually by 2030, yielding 46m tonnes of CO_2 reduction.

Untappable communications

Port of Rotterdam stakeholders will also be able to participate and benefit from an untappable, multi-user quantum network for their critical communication systems.

Several countries already experiment with quantum communication, but QuTech's spin-off Q*Bird is the first to deploy a new type secure quantum network that can connect multiple users via a centre hub in a cost-effective and scalable manner. This will ensure an untappable internet connection between many users, spread out throughout the port area.

The port of Rotterdam is a crucial industrial and logistic hub that handles around 15m containers yearly and together with dry bulk cargo, liquid bulk cargo (such as oil), and breakbulk amounts to a total of almost 500m tons of throughput. The total economic added value of the port represents 8.2% of the Dutch GDP (€63bn), employing more than 565,000 people directly and indirectly.

Securing its communication systems will improve the safety of tens of thousands of sea ships yearly and for a significant part the economical traffic that comes after. The safeguard of information transfer over the global internet is paramount for any large organisation.

Malignant tapping the communication systems between parties can lead to significant financial losses, disruption of critical business operation, or physical harm. A quantum communication infrastructure will insure an untappable connection and will improve the logistics chains of which Rotterdam is a part of, even more so a vital infrastructure on the European continent.

As a first step, the central hub of the system will be situated at the Port of Rotterdam Authority and will connect users at Portbase, and two or three other maritime logistic companies that are based in the port of Rotterdam. The multi-user capabilities of the central hub allow for later additions of, for example, barges and pilotage to the network. In due course, other end-users can be connected to the system too, for example: third party customers, suppliers, and emergency services.

The users will share keys that are generated using quantum technology that they will use to encrypt messages using traditional technology. The strength of this type of setup is the ease by which it can be expanded to many more users, and the relative low cost of expansion.

Upon completion, Portbase can be sure its communication line hasn't been tampered with while connecting with, for example, other port authorities.

Funding for this project has been provided through the Quantum Delta NL SME programme and the Port of Rotterdam Authority.

Future scenarios

The Port of Rotterdam has also been attempting to understand what the future might look like so that it can respond accordingly. So what investments are needed to attract new freight flows, business and clean energy?

The Port of Rotterdam Authority has developed four diverse global scenarios in detail. Central to these analyses was the issue of how changes in geopolitics, economics, society and technology would impact the port-industrial complex and the size and composition of the port's throughput.

The four scenarios towards 2050 are:

» **Connected Deep Green:** Effective global co-operation with acceleration on digital transparency in logistics chains and global commitment to targets to combat climate change, resulting in global carbon neutrality by 2050, broad prosperity and high economic growth and a maximum temperature rise of 1.5°C this century.

» **Regional Well-Being:** From a shared commitment to transition, in the absence of sufficient global trust, a tilt towards a regional focus on clean and healthy environments, privacy and well-being emerges within clusters of countries by early 2030. This results in a deteriorating business environment for basic industry in north-western Europe and moderate economic growth.

» **Protective Markets:** A world with distrust between power blocks, global geopolitical tensions and suboptimal integration in logistics chains. There are competing economic interests in a fragmented world with focus on self-sufficiency, financial prosperity, resilience and defence. No global carbon neutrality before 2100 and low economic growth.

» **Wake-Up Call:** Increasing concerns about the economic impact of external shocks such as food and energy availability or extreme weather mark a turning point. There is growing awareness that strategic co-operation and rigorous measures are needed to reduce carbon emissions. This results in strategically strong EU policies, moderate economic growth and late but rapid transition to renewable energy.

Allard Castelein, CEO of Port of Rotterdam Authority, says: "These latest estimates show that our portfolio will radically change in the next 30 years. The global scenarios help us to strengthen the position of the port-industrial complex in a targeted manner by focusing on sufficient production and processing capacity, good connectivity with key hinterland markets and accelerating sustainability."

CLIMATE GOALS

Industry in Rotterdam-Moerdijk is well positioned not only to meet climate goals but also to contribute to sustainability outside the port area and European energy security of supply. A crucial element here is a new energy infrastructure. This becomes apparent from an update of the Rotterdam-Moerdijk Cluster Energy Strategy (CES).

The CES was first drawn up in 2021 and has been updated this year based on a new data study. The results show that the 2030 targets are within reach, but there is an urgent need to build the necessary energy infrastructure. This requires government direction and cooperation with industry.

Nico van Dooren, administrative coordinator of the Rotterdam-Moerdijk CES, comments: "The Netherlands not only faces a huge task, but we also have the opportunity to grow into a major European hub for hydrogen and circular production. This way, we not only contribute to climate goals and sustainable employment, but we can also reduce our dependence on countries such as Russia.

"However, to achieve this, it remains essential that the necessary infrastructure is built as a priority so that we can provide new, renewable energy to all projects in a timely manner."

In Rotterdam-Moerdijk, a broad portfolio of sustainable projects is being developed that together add up to a CO_2 reduction of around 17m tonnes by 2030. In addition, there is significant potential to contribute to CO_2 reduction outside the ports.

The new data study shows that just making the cluster itself more sustainable by 2030 will require four times as much electricity and twice as much hydrogen as it does today. In addition, the deployment of carbon capture and storage is crucial to meet short-term climate targets while the

transition to circular raw materials and fuels will have a greater impact in the long term.

Annually, around 12% of total European energy demand comes in via Rotterdam, most of which is transported to other industry clusters in the Netherlands and Germany.

A successful transition will give Rotterdam-Moerdijk the opportunity to safeguard this strategic position and its earning power in a sustainable manner and to grow into a hub for the import and transit of hydrogen and renewable energy.

This will allow the cluster to contribute to the Dutch economy, the European climate goals and the RePowerEU's goals of reducing dependence on Russia in particular for energy and raw material imports while maintaining its competitive position.

To facilitate all this, eight key priority projects have been identified:

- Infrastructure for the import and transport of hydrogen
- The Delta Corridor pipeline infrastructure to Chemelot and Germany
- Electricity grid reinforcement and new offshore wind landings
- Infrastructure for the transport and subsea storage of CO_2
- Heat pipes from industry
- Infrastructure for the H-vision project, for low-carbon hydrogen production
- Shore power plants for sea-going vessels
- Hydrogen transport infrastructure between the Netherlands, Belgium and Germany.

The CES was drawn up by a working group of the Port Authorities of Rotterdam and Moerdijk, the provinces of South Holland and North Brabant, Stedin and Deltalinqs, an association of more than 700 companies in the port area.

AMSTERDAM AGREEMENT

A memorandum of understanding (MoU) has been signed between Ireland's first green hydrogen company, EIH2, the Port of Cork and the Port of Amsterdam.

This partnership will enable Ireland to maximise its use of offshore wind as a source of energy, by providing an alternative route to market for such renewable electricity. Earlier this year, the Irish government identified an additional 2GW of offshore wind to be used for green hydrogen production and this partnership provides the route to market that is needed for Ireland to become a net exporter of energy over time.

This partnership will enable the establishment of a supply chain for green hydrogen between Ireland and Europe via the port of Amsterdam. This agreement reflects the high level of collaboration between Ireland and The Netherlands and the European approach of working together to become the first net-zero continent.

The signing of the MoU formed part of a major offshore wind mission organised by the Netherlands embassy in Ireland from in September and held in Cork. The purpose of the mission was to increase collaboration on the energy transition between Ireland and The Netherlands at a national level and business to business.

Pearse Flynn, EIH2's founder, says: "Our goal at EIH2 is to help both Ireland and Europe achieve their ambitious energy targets. The recent RePowerEU plan quadruples the role for green hydrogen in Europe. This was reflected in Ireland's recent carbon budgets, with an additional 2GW of offshore wind planned specifically for green hydrogen production.

"This partnership is the beginning of a supply chain for green hydrogen from Ireland where there is a lot of wind but not a lot of hydrogen demand to Europe, where the situation is reversed."

Conor Mowlds, chief commercial officer of the Port of Cork, says: "At the Port of Cork Company, we see significant opportunities for Cork Harbour to become a hub for renewable energy, which will benefit the environment, local businesses and create employment in the region. We hope to utilise our facilities at this strategic location, working together with like-minded partners to support the development of renewable energy opportunities."

Ireland and the Netherlands have traditionally enjoyed strong and historic trade relations and both countries have placed strategic priority on the development of production capacity and international distribution of green hydrogen.

Gert-Jan Nieuwenhuizen, director of business development cargo at Amsterdam's port, says: "Port of Amsterdam is very pleased with the signing of this MoU with such valuable partners. It underlines both the strong ties between Ireland and our port and the increasing importance of green hydrogen.

"For Port of Amsterdam, priorities are to make green hydrogen available to the large industrial clusters in the greater Amsterdam area, as well as to serve as a gateway to the European hinterland, including regions with high potential demand in Germany.

"The developments in the south of Ireland and the technical proficiency of Irish parties, mean the country will be well positioned for the future export of this new energy source. The port of Amsterdam will offer a route to market for Irish green hydrogen, both in our port itself and in the rest of Europe."

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