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Lori Fellmer, VP for logistics and carrier management at BassTech International, proposes changes in port operations to enable predictability of cargo shipments

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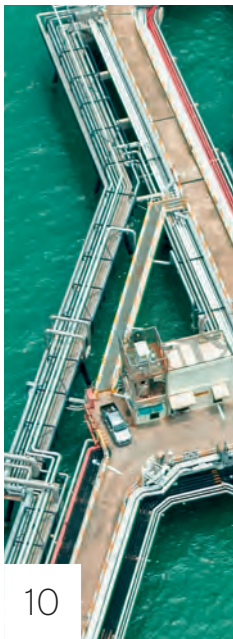
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EDITOR'S COMMENT



INES NASTALI
Editor

Volatile view

CONTRIBUTORS



TONY SLINN
Freelance journalist

The cities of Antwerp and Bruges have talked about merging their ports for some years. The benefits are huge. With an added value of nearly EUR21 billion - equating to 4.5% of Belgium's GDP - it is by far the country's largest economic engine. And at a stroke, it has also become Europe's largest export port, logging 147 million metric tons per year. ■

Big container liners, such as Maersk, Hapag Lloyd, and CMA CGM, again reported favorable earnings in their first-quarter reports, and bet on a strong second quarter. The latter so much that at the end of June, the French finance minister asked the France-headquartered carrier to give back to the French people amid the cost of living crisis.

At the same time, key analysts are pointing to a softening of rates, with some even predicting a growth slow-down as early as year-end.

Currently, S&P Global Market Intelligence Freight Rate Forecast assumes container freight rates will face correction and decline by 20–30% to average about \$6,000–7,000 per box (FEU) in the second half of 2022 from an average of about \$9,000–10,000 FEU over the same period last year.

The softening of container trade growth in response to high inflation rates, endemic consumer pattern, and supply-side pressure with heavy investment in newbuildings, as well as reduced congestion with the easing of COVID-19 restrictions will be major downside risks in the second half of the year, specifically after the third-quarter peak season is over.

Continued strength in container freight with high congestion and limited infrastructure, as well as earlier-than-expected reopening of Ukrainian sea ports would, on the other hand, be major upside risks in S&P's forecast.

The problem with those scenarios is, in the current volatile economic and political situation we are in, they seem equally likely. So, what does this mean for ports when they are subject to conditions they might have no immediate influence on? When vessels – and loads – get larger, vessel

calls get dropped, rail service improvements take years to evolve, and shippers fail to pick up their cargo owing to overfull warehouses as just-in-time becomes just-in-case, ports could be made the fall guy.

Being the connecting link of the maritime supply chain, this is likely. Some ports have already reacted to counter this projection. One of the solutions hailed – and tested – to relieve congestion in ports is to make more use of transshipment and countries' river networks.

In mainland China, this recently helped to ease the burden on Shanghai port while the city was in lockdown. In turn, this was an economic boost for smaller river ports further inland that benefited from the rerouted cargo.

In Europe, river networks are constantly expanded to increase the amount of short sea shipping. Also, the smaller ships used for this are ideal candidates to trial alternative fuel solutions so should be used extensively.

However, without the appropriate infrastructure upgrade – such as dredged waterways – this will not be a sustainable solution to reduce emissions, but could further clog up river arteries. This has recently been seen in the Danube River around Romania to get grain shipments out of conflict-blocked Ukraine.

The volatility of the global economic situation shows that no country is safe from disruption. Ports are forced to keep the trade arteries flowing while working with the limited infrastructure they currently have – and are best advised to work closely with their partners that work further inland. ■

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NAMRATA NADKARNI
Freelance journalist

When writing my article, I was struck by how complex and expensive decarbonization is, with differing priorities for individual sub-sectors. Each link in the value chain – from shippers and charterers to vessel operators, fuel suppliers, and more – is waiting for someone else to take decisive action, leaving everyone in limbo. ■



CHARLIE BARTLETT
Freelance journalist

As I was researching steel manufacturing methods, I was surprised to see an overlap between zero-carbon steel production and the offshore wind sector. These two could greatly benefit one another, and there is an obvious overlap with ports, as well. This is something I would really love to see happen in the United Kingdom. ■



IN CONVERSATION WITH LORI FELLMER

Pain points pictured

Speaking at the World Ports Conference in Vancouver, Canada, and to IAPH managing director Patrick Verhoeven, Lori Fellmer, vice president of logistics and carrier management at BassTech International, outlines the pressure points shippers face and how ports can help to relieve those

INES NASTALI



While we have heard about disruptions on the ocean and port side from ports and shipping lines during the past two years, individual shippers or the so-called beneficial cargo owners have also experienced never-seen-before disruptions, lack of reliability, and increases in pricing. Consequently, the past two years have forced shippers to become closer with their transportation providers, whether it be with container lines, but increasingly ports that they depend on for routing through their cargo.

Lori Fellmer, vice president of logistics and carrier management at BassTech International, a New Jersey-based chemical supplier company, was therefore invited to share her experiences with ports at the World Ports Conference (WPC) in May. Lori then continued the conversation in an exclusive interview with *P&H* and its managing director Patrick Verhoeven.

Listing a range of topics that shippers care about, Lori came up with four points — go-to for exception handling, alignment, predictability, and speed — spelling out the word gaps, in line with the #Closethegaps theme of the IAPH conference.

“We feel that ports, without a doubt, have a big role to play in that. It begins with the vessel arriving and cargo being discharged, but it’s more than that.”

For example, there needs to be swift access to empty containers to get goods out to market. Shipping primarily into and out of the US, where this is an acute problem, Lori also said that “access to chassis is very important, and that’s something that’s delaying the entire chain.”

She therefore put special emphasis on predictability as something she would like to see more of. “This is what I call visibility on steroids. We want visibility. This is what is driving all of this digitization and the common port systems that are being talked about. And we cargo owners are very, very supportive of this, but we’d like something a little bit better than real-time visibility. We’d like some predictability.”

Changing the mode of operations

Part of this would mean a change in how the industry processes information. According to Lori, “We’re so reactive and linear, we don’t do step two until step one is signed, sealed, and delivered. This is no way to work in logistics,” she criticized. Especially as the information needed, about a ship coming in to berth, how long unloading takes, and which containers will come off the ship in a given port, are known factors to plan with.

Pictured: Lori Fellmer being interviewed by *Ports & Harbors* magazine.

Photo: Mark Kinskofer



“Why do I need to wait until the Thursday to hear that my container is discharged? Why is it not possible to say a week prior that your container will be available by Thursday?”

Distorted picture

The real-life impact of this lack of coordination is felt by shippers, “This sort of division of responsibility a cargo owner tends to feel when we pick up the phone, and we call a terminal or port. We’re often caught between responsibilities,” she said, explaining that sometimes she gets told that this would be the steamship’s responsibility or the terminal operator’s.

“It’s frustrating that every experience at a port or even within a terminal can be different depending upon the circumstances of a particular issue,” she said.

While acknowledging that ports have done an amazing job moving high amounts of cargo throughout the pandemic, she would like to see them take ownership of these — what she calls — pain points. “Yes, I felt like the ports were invisible two years ago. And congratulations, you’re all now famous because everyone knows who you are,” said Lori.

Making contact

However, the time has come to look beyond berths, and to the inland to assess with service providers and partners on how the creases in the supply chain’s running can be smoothed out. In this context, Lori praises those ports that have taken the current congested situation to try new ways to be flexible and free up space, for example, by establishing dry ports or building distribution centers.

Lori also welcomes when ports reach out to her directly to attract new business, explaining to *P&H* that she — and presumably the carriers — see this as them being a partner in the service delivery.

For Patrick, this is a good development. “In the past, for example, as an agent you were only supposed to talk to the forwarder, if you went beyond them, then you received a slap on the wrist, so I would have thought this would be the same if a port goes to the end customer.” He added that, “this protective barrier has been typical for our industry for many years.”

For shippers themselves, this still means they have to be flexible. Having routed cargo through larger and smaller ports for years to stay agile, Lori is in an excellent position to evaluate ports and their performance. “If there are ports that are chronically plagued with delays, we would

“Ports should work with cargo owners”

PATRICK VERHOEVEN
MD, IAPH

choose to avoid them when we have the choice,” she said.

However, the logistics expert added that some things are incidental. “We had this conversation about the horrible fires and weather effects that impacted Vancouver in 2021. I mean, your decisions are being taken quite in advance, but at those moments, the decision is to avoid those ports and come back after things are resolved.”

Patrick therefore thinks that Lori’s point of needing to have a go-to for exemption handling is vital. “That is a message that we try to get across, and that has been predominant feedback from the pre-conference workshops we have done, you should always listen to your ultimate customer,” he said. He added that while this sometimes already happens, it is not yet the widespread attitude among port authorities.

On a broader scale, Lori also focuses on connectivity to the hinterland owing to the products BassTech ships. “We ship chemicals, which are heavy. And we do look for terminals that are working in an area where there are good corridors for heavy equipment and containers,” she explained.

Getting connected

Lori also looks to digital connectivity to improve her operations. “Right now, all of the data that’s out there requires interaction with multiple sources. And I think that’s where things get slowed down,” she said.

Lori explained how she keeps a long list of different logins for tracking platforms depending on with which lines she ships. Depending on how well maintained those data systems are, they also play into the decision which line Lori uses for her shipments. This lack of standardization is something that is already being looked at by the IAPH.

However, Patrick acknowledges that voluntary measures might be not far reaching enough. “US federal maritime commissioner Carl Bentzel put it well when he said voluntary regulations are an oxymoron.”

While the way to a standardized system might be a long way away, the IAPH therefore welcomed the IMO’s Facilitation Committee decision made in May to adopt amendments to the Facilitation Convention.

Those will make the single window for data exchange of information required on arrival, stay, and departure of ships in ports mandatory around the world from 2024. With the IMO also deciding that public authorities will have to combine or coordinate the electronic transmission of the data, ports become center-stage in the implementation.



Pictured: Lori and Patrick in conversation at the WPC in Vancouver.

“This represents a major challenge for the global port community,” predicts Patrick. “We know that a majority of ports still struggles to implement the basic IMO electronic data exchange requirements that have been mandatory since 2019.” He therefore calls on governmental intervention to ensure this next step gets implemented timely.

This can currently be seen in the US with work done by commissioner Bentzel, which Lori called “fantastic,” while also acknowledging that “we’re way behind the curve in America. I have spoken with colleagues elsewhere in the world. Some of the port systems in Europe are very useful. I think they’re a little bit underutilized, and I think you also have to take care that the cost of using it is not prohibitive to shippers.” (See *P&H* May/June 2022.)

Lori highlighted that there is an opportunity for port authorities to shine. “I think one of the big black holes is the gap between cargo that’s destined to move by rail after it discharges and before it gets on to a train. I can recite the same conversation in my sleep. ‘We don’t know when it’s going to move. The port is very congested.’ Yes, I know the port is very congested. Is there one container or 1,000 containers before mine gets on a train? ‘We don’t know.’”

“I believe the person I’m talking to doesn’t know, but that’s a shame. I think the port authorities have the ability to bring everyone to the table and say, we’re going to do a better job than that.”

Patrick supports this view. “The role of port authorities is changing but perhaps not as quickly and universally as we would wish. The renowned British port economist Richard Goss already argued in 1990 that port authorities should be leaders in dissatisfaction, in other words they should not take a backseat role as landlords, but take a close interest in what their tenants are up to, provide incentives to increase service levels, and invest in facilities and services that improve the overall port product.”

While for Lori the information where her cargo is is most important, she would also like to see that data can be used to review what went well – and what did not. Through this, she argued, ports can also lead on decarbonization efforts. “They can really move the needle and influence carriers and ports and all folks involved in this who have the ability to work on reducing emissions.”

Collaboration wanted

While Lori is glad to see that the WPC was focused on those pain points pictured, the carrier manager does not see the immediate situation improve in the near future. “No — 12 months is a little short. I think we have a long way to go, but everyone’s focused,” she said.

Finally, Lori emphasized again the key message her fellow shipping colleagues wanted her to convey. “We want ports to understand our business. Please put yourself

in our shoes. Think about the impact of the decisions that you take. I know we’ve seen some amazing decisions being made by ports, which are great in helping the shipper community. Things like establishing these dry ports, things like pop-up container yards to help meet our needs for equipment. New developments of rails. All of these things are really important.”

However, Patrick concluded, “We need to reverse the paradigm of the passive landlord port authority.”

He added, “IAPH can play a role in changing this mindset and a great opportunity presents itself with the World Bank announcing a new edition of its influential Port Reform Toolkit. This toolkit has been used by governments worldwide to privatise cargo handling operations in ports, but reforms have often left port authorities in a secondary role.”

He is, therefore, “very happy” that the World Bank has invited the IAPH to contribute to the new toolkit, which will allow to build on the experience of port authorities that have successfully taken on a leadership role that benefits both port communities and their customers. ■

“We want ports to understand our business”

LORI FELLMER
BassTech International



PERSPECTIVE DISRUPTION

Understanding complexity

The marine transportation system (MTS) is finding itself uncomfortably in the news as pandemic-driven changes in trade and other factors reveal previously overlooked vulnerabilities and complex dependencies. Port operators, cargo owners, and consumers alike have found that supply chain resilience has its limits when multiple disruptions converge. A better understanding of complex disruptions may help to foster a more robust MTS in an increasingly interdependent world.

The blockage of the Suez Canal by the grounding of container ship *Ever Given* during the pandemic in March 2021 was an early indicator of this issue. Simultaneously, in March 2021 alone, 200,000 seafarers were stranded on ships owing to COVID-19 restrictions, and labor shortages and outbreaks were happening globally, further stressing the situation. Favorable tides and good decisions helped resolve the situation relatively quickly, but the event highlighted the challenges of an already-stressed global

supply system. It could have been much worse, with cascading supply chain impacts throughout the MTS.

Multiple risks

Increasing traffic through a fixed number of ports however makes the MTS vulnerable to disruptions, including accidents, natural disasters, and deliberate attacks. Automation improves efficiency and also pushes the system closer to its maximum capacity, leaving little room for error. Technology also carries risks related to cybersecurity, power disruptions, and the need for new kinds of skilled labor. Climate change threatens to flood docks with rising sea level while intensifying storms. Busy ports are a place where all of these risk factors can coincide, and when they do, the consequences may be greater than the sum of the parts.

To date, most research and contingency planning has focused on single-event disruptions such as an oil spill, natural disaster, or security incident. There has been

little analysis of the cascading impacts of multiple disruptions that build on each other in complex ways. The limited research suggests that modeling the impact of multiple vector disruptions and multiple MTS targets can help policymakers, business leaders, and others anticipate, plan for, mitigate, and rapidly recover from future disruptions.

With this as the background, a team of three US Department of Homeland Security university centers of excellence – CCICADA at Rutgers University, CREATE at the University of Southern California, and CAO at Arizona State University – is working to identify risk factors to the MTS to better understand how they interact and quantify the potential for cascading consequences from complex disruptions. The research also investigates pre- and post-incident mitigation and resilience strategies to reduce risks.

What the team has learned

The research is still in its early stages, and the primary methodology at this point is to



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listen to experts and learn how complex disruptions have impacted commerce or might in a future where technological, financial, and environmental change leads to new possibilities. The team has interviewed professionals from major shipping lines, trade associations, port authorities, freight forwarders, the oil and energy industry, and the US Coast Guard, just to name a few. The questions asked are references to their experiences in the past – and ongoing – disruptions and emerging risks. The research team has had some surprising responses from the simple question of what keeps you up at night because they are also interested in improving resilience. It has been equally revealing to ask experts what changes they would make if they had the power to do so.

While the responses have been as varied as the industry itself – as they say, if you have seen one port, you have seen one port – there have been some common themes. Cybersecurity, in its myriad forms, is a nearly universal concern. Electrification is clean and efficient but significantly depends on old infrastructure and a vulnerable grid. Simply having access to the waterfront is a

“Simply having access to the waterfront is a challenge in many locations”

LATHA VIJAYAGOPAL
Graduate student,
Rutgers University

challenge in many locations, as non-maritime players and growing coastal population centers seek waterfront property, pushing out any marginal maritime commerce organizations that might have provided extra capacity and resilience in an emergency.

The research is also focused on quantifying the cascading economic consequences of complex disruptions.

The team will be building on the USC CREATE research team’s previously developed Economic Consequence Analysis Tool (E-CAT) that is well-suited to addressing supply chain issues. It works by running hundreds of simulations with a complex computable general equilibrium model and then performing regression analysis on the results.

Introducing a new tool

One of the research goals is to improve that tool by drawing on more extensive data, especially at the port level, and enabling it to consider multiple, simultaneous disruptions. The new tool, Complex Maritime Economic Consequence Analysis Tool (M-CAT), will have a high level of accuracy and broad real-world applicability. The M-CAT will account for uncertainties, thereby providing

confidence intervals over a range of estimates and an improved reflection of actual economic activity.

The team expects that M-CAT and its associated research will improve understanding of how complex disruptions impact commerce and provide a credible, independent measure of the value of a well-functioning MTS to society. In combination with other tools and information, this can help policymakers and business leaders make sound decisions on infrastructure investments, training and education programs, contingency planning, and long-term business strategies.

The past few years have brought far too many disruptions to our ports and harbors, including trade disputes, a global pandemic, considerable shifts in cargo volumes, cyberattacks, and the old standbys of natural disasters, accidents, and daily business challenges. As of this writing, the Russian invasion of Ukraine is impacting the MTS in ways as varied as stranded seafarers, economic sanctions, war risk insurance premiums, and the increasing price of food and energy. Complex disruptions appear to be here to stay. ■

The researchers seek input from professionals across industry, academia, and government. If you are willing to share your perspectives on the topic, please contact Dr Fred Roberts at froberts@dimacs.rutgers.edu.

FEATURE GREEN CORRIDORS

Photo: Getty Images/Suriyapong Thongsawang



FEATURE GREEN CORRIDORS

Corridors of caution

Uncertainty about the dominant fuel choice of the future fleet is preventing the concept of green corridors from taking the leap off the theoretical plane and into the real world

NAMRATA NADKARNI

M

aritime's transition to a decarbonized future is already under way, with the IMO setting a 50% emission-reduction target for 2050 as compared with shipping emissions in 2008. Many stakeholders have announced even more ambitious targets. The Zero-Emission Shipping Mission has announced its intention to demonstrate commercially viable zero-emission ships by 2030. Maersk has accelerated its net-zero greenhouse gas (GHG) emission goal by a decade to 2040, plans to have a completely carbon-neutral liner in operation as early as 2023, and has committed to only ordering dual-fuel newbuilds henceforth. Several major shippers, including Unilever, IKEA, and Amazon, have pledged to transport cargo using only zero carbon-fueled ships by 2040.

A key factor in the decarbonization transition is fuel and energy availability, prompting the emergence of the terms green as well as bunkering corridors.

These corridors will be explicitly designed to facilitate the net-zero or zero-emission transport of goods and passengers. The intention is that these, as transport pathways, will see increased investment, serve as a designated area to test new technologies, and as a business case for decarbonized operations and uptake of alternative fuels. With ports serving as bunkering hubs, there is considerable economic opportunity to invest in low-carbon bunkering infrastructure.

Growing popularity

There is no doubt that the concept of green corridors is becoming increasingly popular. Governments from 24 nations signed up to the Clydebank Declaration (CD) launched at the United Nations Climate Change Conference (COP 26) in October 2021 and have pledged to establish green shipping corridors. Many of these countries have already begun to work on collaborative projects, with CD signatory Singapore committing to setting up six bunkering corridors.

In May 2022, at the IAPH World Ports Conference, the Port of Seattle, City and Borough of Juneau, Vancouver Fraser Port Authority, the Cruise Lines International Association, individual cruise lines, as well as the Global Maritime Forum, Blue Sky Maritime Coalition, and Washington Maritime Blue announced their intention to explore the feasibility of the world's first cruise-led green corridor.

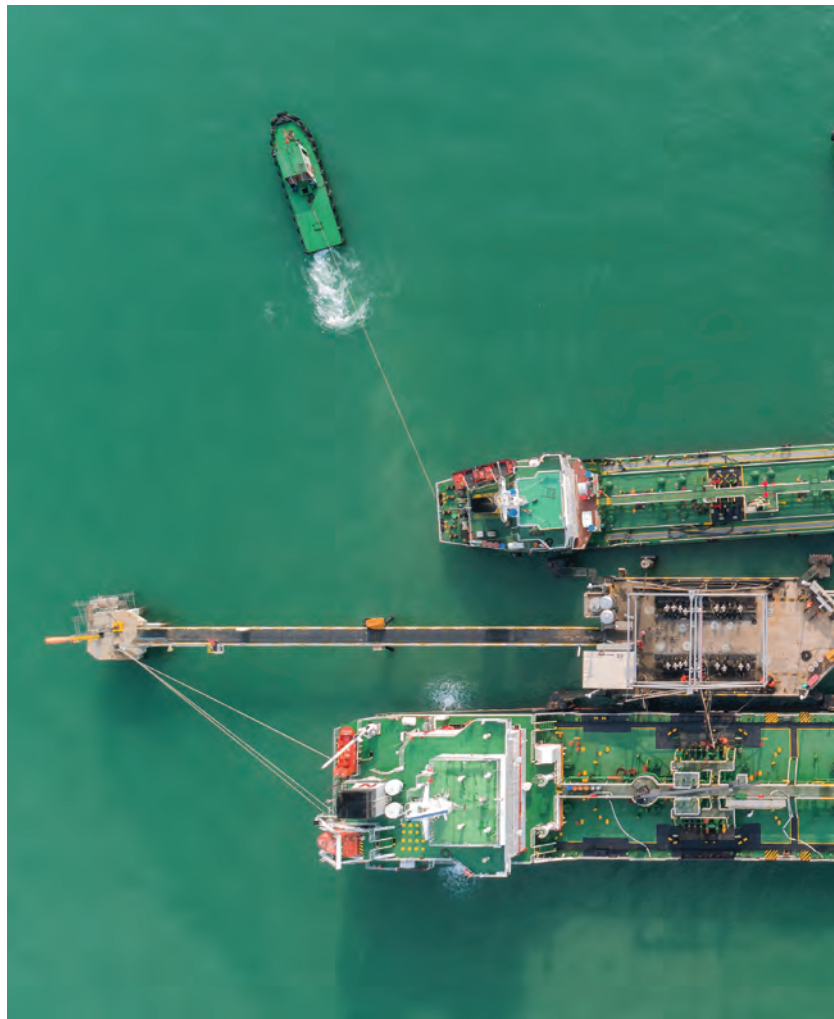
However, several critics have pointed out that there is no fixed definition of what a green corridor is. Speaking at the IAPH event, Stephen Metruck, executive director at the Port of Seattle, stated that the stakeholders involved in cruise green corridor have not narrowed down its options to specific fuel types and would be exploring various options in the months to come. In a statement, the United States (also a CD signatory) explicitly warned that “there is not yet a shared understanding of what it means for a maritime corridor to be green”.

Fuzzy terminology

This is not to say that definitions for the new terms do not exist. However, these tend to be generalized and often overlap. The CD states that these corridors will be “zero-emission maritime routes between two (or more) ports,” while the US envisions green shipping corridors as “maritime routes that showcase low- and zero-emission lifecycle fuels and technologies with the ambition to achieve zero greenhouse gas emissions across all aspects of the corridor in support of sector-wide decarbonization no later than 2050.”

Singapore's Maritime and Port Authority (MPA) foresees green corridors as pilots to demonstrate how key ecosystems, including regulatory sandboxes for new fuels, green financing, information sharing, and carbon accounting mechanisms, can be brought together to provide practical ways to decarbonize the maritime industry.

The lack of clarity on the term allows it to be interpreted differently by individual ports. As there is no requirement for a green corridor to meet minimum distance requirements, a route catering to short-haul and coastal vessels would be classed the same as a deepsea route between two countries that would be infinitely more complex to establish and manage. Furthermore, corridors offering bunkering of green hydrogen as a result of significant resources invested by a government would be seen on parity with corridors that have vessels using LNG or a ferry route that allows the use of a battery.



“Stakeholders have not narrowed down options to specific fuel types”

STEPHEN METRUCK
Executive director, Port of Seattle

Additionally, as vessels not meeting emission criteria are able to transit routes designated for green corridors, the presence of a single low-emission vessel making just one journey would technically be sufficient to meet the existing definition of a green corridor.

However, it should be noted that several stakeholders, including the US government, believe that green corridors should adopt an ambitious attitude toward emissions reductions that go beyond the current norm.

Complex landscape

Although ship operators are wrestling with decisions about costly investments for their fleets, most of the investments to support shipping's decarbonization must be made on shore in the form of infrastructure to support port calls by, bunkering of, and maintenance for vessels using alternative fuels. In its *The scale of investment needed to decarbonize international shipping* insight paper, the Getting to Zero Coalition puts a price tag of about \$1 trillion in investments to decarbonize shipping, of which ships will account for only 13%.



By comparison, land-based infrastructure and production facilities for low-carbon fuels will account for about 87% of the total investment.

The insight paper is predicated on ammonia being the dominant fuel in the future – with sustainable hydrogen as an input into ammonia production. However, the analysts do not expect the total investment needed to drastically change irrespective of the future fuel mix.

This is valuable information given the uncertainty most ports are facing when it comes to bunkering vessels using alternative fuels. The uncertainty primarily boils down to the risk of investing in fuels that become obsolete, which not only leaves the port with a stranded asset but may also see it lose market share to other bunkering ports.

The situation is further complicated when one considers that many vessels will use hybrid fuel options, thereby increasing the bunkering services needed, and may also avail themselves of technological means to reduce GHG emissions, such as the use of wind power, onshore power, carbon capture solutions, and more.

In April 2022, the MPA's Maritime International Advisory Panel warned of the need to balance between narrowing down and catering for a few viable fuel solutions in the nearer term, and retaining flexibility to respond to

technological advances when considering investments needed to build bunkering infrastructure.

Fuel preparation

Most major bunkering hubs have already begun preparations to cater to vessels using frontrunner fuels such as ammonia, hydrogen, and methanol – and currently offer access to a range of biofuels and LNG. While these frontrunners will act as early movers, other ports have a unique opportunity to enter the bunkering market as most of the alternative fuels are not as energy dense as HFO (read more about this on page 18). Vessels using emerging fuels must choose whether to sacrifice cargo space to house larger fuel tanks or decide to bunker at more ports along their route.

Were more ports to offer bunkering services for alternative fuels, this could fundamentally reshape trade routes and the current geography of bunkering hubs. However, for ports to justify the investment – which extends beyond financial commitments into stakeholder engagement, the creation of safety mechanisms, regulations, and more – they need to be assured of demand from operators. This is particularly true for landlord ports that must cultivate relationships with bunker suppliers and create infrastructure for them. Ironically, the same operators are reluctant to commit to specific fuels and routes without confirmation that a port will be able to accommodate their vessels.

The World Port Climate Action Programme (WPCAP) and IAPH's Clean Marine Fuels (CMF) working group are collaborating on creating a framework to facilitate port calls and bunkering of vessels using alternative fuels. The CMF working group has created a basic safety framework to address the use of alternative fuels by vessels in ports as well as several practical resources such as bunker checklists and audit tools.

Based on an original concept from the IAPH CMF working group, IAPH and WPCAP's working group on sustainable fuels are working on a Port Readiness Level tool to increase transparency of a port's ability to accommodate vessels using or bunkering alternative fuels. The tool, based on NASA's widely accepted nine-step Technology Readiness Level indicator, will allow vessel operators to understand each port's current status and eventual ambition to cater to vessels using alternative fuels.

Challenges ahead

The lack of clarity about demand for specific fuels as well as the services needed to cater to vessels using alternative fuels are the hurdles that must be overcome urgently for bunkering infrastructure to be built ahead of 2050. The creation of green bunkering corridors presents ports with a unique opportunity to confirm risk and rewards for operations in a lower-carbon future.

While still in its infancy, the concept of these corridors wields a powerful tool: that of focusing resources, particularly financial, as well as government and regulatory support on individual projects – all of which are integral to the success of shipping industry's decarbonization transition. ■



Decarbonization of shipping is arguably one of the most important yet difficult challenges in the global fight against climate change, precisely because of its international nature. While shipping remains the world's most efficient means of transport, the international regulations needed to reduce emissions have been slow to take shape. This makes regional initiatives all the more important to kickstart the transition and set the example for global initiatives.

As Europe's largest port, we support a net-zero emissions target for shipping in 2050 and play an active role in stimulating more sustainable shipping. The Port of Rotterdam is home to multiple initiatives for the production and bunkering of sustainable fuels and a front runner in helping to establish the safety frameworks and incentives needed to promote their use. We are also taking steps to establish green corridors by cooperating with supply chain partners and other ports to enable zero-carbon shipping across selected trade routes.

This has helped kickstart projects, but impactful legislation will still be required to steer the market toward large-scale production and use of sustainable marine fuels. However, international consensus on



this will likely not be reached in the short term. Large regional players should therefore take a leadership role in the transition as is done by the EU by stimulating demand via the FuelEU Maritime initiative, driving supply with the Renewable Energy Directive and through market-based measures, such as the emissions trading system.

Europe is big enough to help drive market forces and I find myself more optimistic about the pace of change than just a few years ago. Of course, regional initiatives do carry a risk of carbon leakage, as ships may be tempted to divert to countries with less stringent rules. In part, this can be addressed by well-crafted legislation to provide a level-playing field. More importantly, stakeholders, such as non-governmental organizations, consumers, and companies, such as customers of liners, are also increasingly critical of such avoidant behavior. It is therefore also in the interest of shipping companies and cargo owners to actively support higher sustainability standards.

This way, regional measures will not only accelerate regional uptake of cleaner fuels but also pave the way for global policies, so that soon the world's most efficient form of transport will also be its most sustainable once again. ■



THE DEBATE

With no breakthrough expected to determine global market-based measures in the short term, is it right for maritime to proceed with regional emission-reduction measures?



According to a recent report from the International Chamber of Shipping (ICS), the future fuel demand for shipping is equal to the entire current global production of renewable energy. It will require a global effort to develop fuels, propulsion systems, supply networks and port infrastructure to support the more than 50,000 ships sailing the world's oceans.

The marine shipping industry has demonstrated that it is up for this epic challenge – taking the lead, often ahead of regulators, with a resounding commitment for shipping to increase its emissions targets to net-zero carbon by 2050. Shipping leaders have also aligned behind the need for a global market-based measure to incentivize the uptake of green fuels, and for governments to support a \$5 billion R&D fund, derived from a levy on marine fuel, to accelerate the development of fuels and technologies needed to decarbonize our industry at the scale and pace required. The ICS has submitted a paper to IMO identifying R&D that could be funded.

What we need is action from governments and member states to find consensus on market-based measures that will help incentivize the use of green fuels and ensure a global playing field for trade.



The agreement has thus far been slow, but regions cannot start implementing their own regulatory measures that become a barrier to freedom of trade or essentially amount to a tax on global trade in certain jurisdictions.

It is also paramount that technology and training standards remain consistent across the world so that ships that criss-cross our oceans are not subject to conflicting rules.

There is room for a Canadian-specific approach to benchmarking emission-reduction progress and tailoring short- and medium-term decarbonization measures for our domestic fleets, which have short-distance trading patterns, and specially designed, smaller ships. The IMO's current proposals and efficiency measurement tools were designed for large ships that travel long distances and spend a smaller proportion of their voyage time in port. This approach will not create new rules or taxes for domestic or ocean-going ships travelling to Canadian ports. Rather, it ensures that our domestic ship operators are recognized for their \$2 billion investments in specially designed eco ships and that carbon-reduction measures are effective and impactful in the context of our specific trading patterns. ■

ONE HUNDRED

Readership results: With no breakthrough expected to determine global market-based measures in the short term, is it right for maritime to proceed with regional emission-reduction measures?

100%

0%

JULY/AUGUST | EMISSIONS

POLL RESULTS

The result of this month's poll could not have been clearer: all respondents to the question "if following the lack of progress to determine global market-based measures in the short term, it is right for maritime to proceed with regional emission-reduction measures," replied with yes.

The recent IMO Environment Protection Committee (MEPC)78 meeting in June 2022 further discussed a levy-based, as well as, a cap trading system, with a decision on which system to adopt only expected to come in July 2023 at the MEPC80 meeting.

Readers therefore favor local solutions that – arguably – put pressure on the maritime regulator, the IMO, to decide on a global solution. ■

SEPTEMBER/OCTOBER | SHORT SEA

THE POLL



Are ports prioritizing short-sea shipping services enough to relieve current congestion and reduce emissions from ships?

One of the solutions hailed – and tested – to reduce emissions and relieve congestion in ports is to make use of transshipment and countries' river networks.

In mainland China, this recently helped to ease the burden on Shanghai port while being in lockdown. In turn, this was an economic boost for smaller river ports further inland that benefited from the rerouted cargo.

In Europe, river networks are constantly expanded to increase the amount of short-sea shipping. Also, the smaller ships used for this are ideal candidates to trial alternative fuel solutions.

However, without the appropriate upgrade of infrastructure – such as dredged waterways – this will not be a sustainable solution to reduce emissions, but could further clog river arteries. This was recently seen in the Danube River around Romania to get grain shipments out of the conflict-blocked Ukraine.

So, do ports support this side-arm of maritime transport enough or should they look further inland to build capacity of river ports? ■

Either scan the above QR code or use the web link below to submit your answer to this month's readers poll:

🌐 bit.ly/PHSepOctPoll



Guy Platten

In its 100th's year, the International Chamber of Shipping looks ahead to propel the organization into a decarbonized future

CHARLIE BARTLETT

This year, the International Chamber of Shipping (ICS) celebrated its 100th year. To mark the occasion, it hosted a closed-door summit on 21 June, corralling industry leaders to discuss strategies for the decarbonization of the shipping industry.

Time to catch up with ICS secretary general Guy Platten. "We keep hearing about green corridors but there seems to be little certainty on what that means. Rather than a green corridor, it would be more useful to have a green hub," he said.

Kicked into touch

However, at the meeting of the IMO Marine Environment Protection Committee (MEPC)78, the International Maritime Research and Development Board (IMRB) fund favored by the ICS to propel emission reduction tools financed by a carbon fuel levy of \$2 per metric ton was "sadly, essentially kicked into touch" by the IMO, Platten said. In the immediate aftermath of MEPC78, lamenting the fate of the research fund plan, Platten said the IMO had "wasted its opportunity to kickstart a rapid transition to zero-carbon technologies."

The IMRB plan represents one of several possible market-based measures (MBMs), essentially a carbon levy that would provide a twofold incentive to use less hydrocarbon fuel, and provide funding for alternatives. Other alternatives have been discussed, such as using the money to provide discounts on fuel charges.

A counter argument to MBMs is common but differentiated responsibilities, which argues that developed countries, many of which began emitting massive amounts of pollution centuries ago, should be considered to have a greater responsibility for the effects of climate change than developing ones.

Discussing the ICS' June summit, Platten said there was "a strong commitment to market-based measures," among attendees. "That is, how we set up some sort of cross-skilled body with energy providers, to see how we manage this energy transition," he explained.

Platten said that the attendees were with him in demanding greater oversight from the IMO.

"We have to be serious about our targets for 2050, we have to have a lot more ambition that way — because you can't build all your ships all at once, so we are going to have to start that process now," he warned.

"A big shipowner said to me yesterday — if you get to a situation where the industry is ahead of its regulator, how does that happen? Usually, you have a situation where the industry is trying to stop the regulator declaring all sorts of things, but here we are with shipowners saying, 'I'm for more regulation' — I can't imagine many business leaders doing that."

Indeed, the closed-door nature of the talks, where media were not allowed to attend, was intended specifically to provoke outspoken debate, Platten said, "to get them to say how they really feel, rather than sticking to their corporate lines. We had some really good representation from different sectors: shipowners, ship operators, insurers, unions, finance, energy providers. It was to try and get that sense from people about how it's going to happen."

Clean hubs

Platten said ports will have a key role to play in a decarbonized shipping economy since even burning fuel without any CO₂ emissions, shipping will still need to maximize efficiencies. "It's not just about the bunkering hubs for the marine fuels and infrastructure. It's also about how you can make shipping more efficient through digitalization, so that we can ensure that when ships arrive in port, they can discharge immediately, load, and so on."

He acknowledged, "We all know the clean fuels of the future are not as efficient as the fossil fuels they replace, so it is about how we maximize efficiencies. Ports will have to look at the logistics chain, and the efficient movement of ships and goods. So, ports are going to play an incredibly important role in the ecosystem."

Speaking of how history even repeats itself, he said, "They always have been — in Singapore, I spoke to a clean fuels provider who was setting up places in Egypt and Oman. They did some analysis of the Royal Navy bunkering stations from the 19th century. It's uncanny, he said, how closely they resemble where we are going to put all these clean fuel hubs!"

Running ahead of the regulation

So, why would the industry be inclined to make life harder for itself? Platten highlighted one notion of why it would be in the shipping industry's own interest to support decarbonization both within, and without its own sector. "What we're seeing is that shipping is going to be part of the solution, because where a lot of these clean fuels are going to be manufactured — in developing nations — somehow we are going to have to get those fuels from where they are manufactured to where they are going to be needed."

Indeed, recently there has been an abundance of new designs for CO₂ carriers — which would be needed to transport captured carbon to the burial sites, for example Project Longship in the North

Sea — and hydrogen carriers. These would be needed to carry renewably generated hydrogen from economies in the global south, such as in Argentina and Chile, where projects are already under way to harness abundant wind energy to generate hydrogen. "There is going to be an

"A big shipowner said to me — if you get to a situation where the industry is ahead of its regulator, how does that happen?"

opportunity for shipping to play its part in that," said Platten. "So, we want governments to understand that it is not only about shipping per se; rather, shipping will be an enabler, to make decarbonization happen for everyone."

Platten explained why this is important. "But more broadly, we all see climate change — I think we all get the message at this point, so there's certainly a bit of that," adding that, "But actually, providing they have a level playing field, the regulations to do it, and the MBMs to support it, the industry will get on and do it. There's no fighting it, it needs to happen — we need to have the support and the collaboration to make it work," he concluded. ■

At a Standstill

The current ship orderbook does not indicate the paradigm shift needed to reduce emissions from ships and improve air quality in ports – partly blamed on the lack of infrastructure in ports

INES NASTALI

The future fuel mix ships will run on not only determines the emission-reduction path of maritime, but also the way ports can benefit from the anticipated greater fuel choice and becoming energy hubs.

Therefore, choices shipowners make will partly depend on the bunkering infrastructure and fuel availability in ports.

However, before alternative fuels, such as ammonia, hydrogen, and methanol, propel the world fleet, ships will continue to run on sulfur fuels – using additional means to keep emissions low.

S&P Global data for major ship types, for example, shows that over 4,000 ships have been fitted with exhaust gas cleaning systems, adding to the immediate reduction of emissions as well as cleaner air around ships, and thus, in ports.

Over 350 ships still await their dry dock appointment to be fitted with a scrubber system. A select few ships, such as container ships, ro-pax, ro-ro, and tankers, are LNG- or ammonia-ready, but do not have the equipment on board. Given that current fuel prices let charterers opt for the cheaper fuel, LNG loses out.

Around a tenth of the current container and cruise fleet can also plug into onshore power, thus reducing emissions this way. Looking at the primary fuel of the orderbook, very low- and high-sulfur fuel stays the prime choice for engine propulsion but marine gas oil is also a steady choice of future fuel.

S&P Global data shows no orders for fully hydrogen- or ammonia-propelled vessels to come into service by 2030.

To cater to those vessels in future, ports need to set up different infrastructure. Especially ships on regular port rotations, such as container ships, that are, for example, capable of using LNG, could serve as a good indicator of the business opportunity for ports to offer LNG bunkering.

This, in turn, would raise the confidence in the fuel or its green versions that have been produced without using fossil fuels. The problem faced here is that biofuels also compete with the land-based market such as for cars and trucks. The same is observed with hydrogen where over the past years,

Ship type



Bulk carrier



Car carrier



Container ship



Cruise ship



General cargo ship



LNG carrier



LPG carrier



Reefer



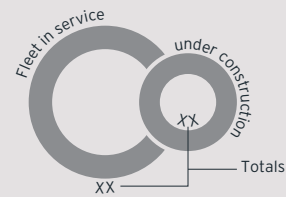
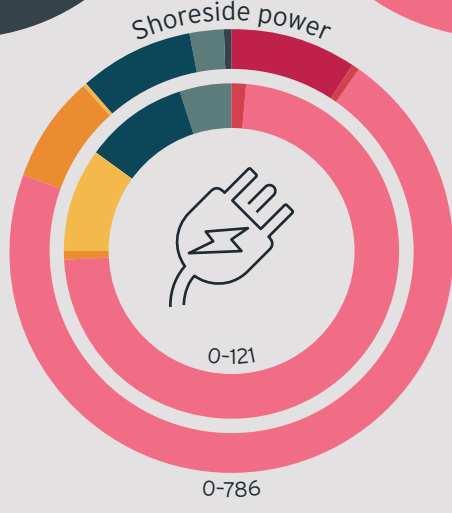
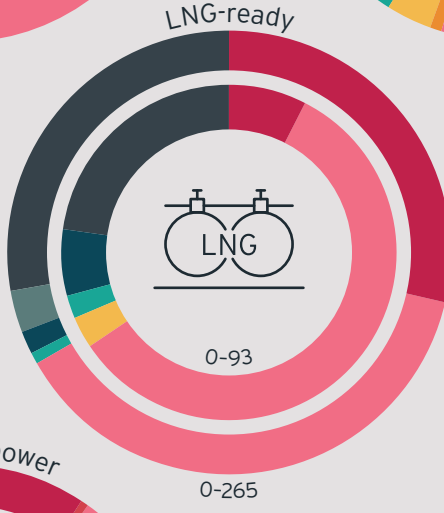
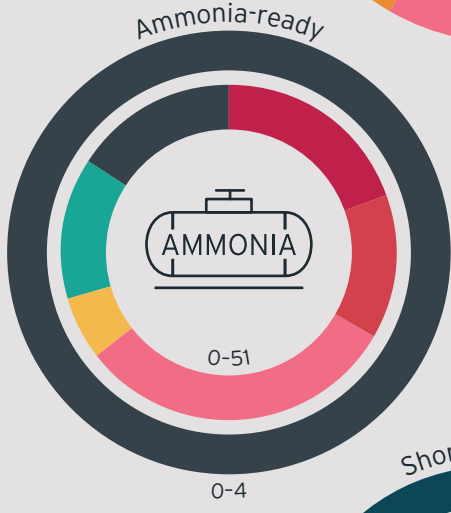
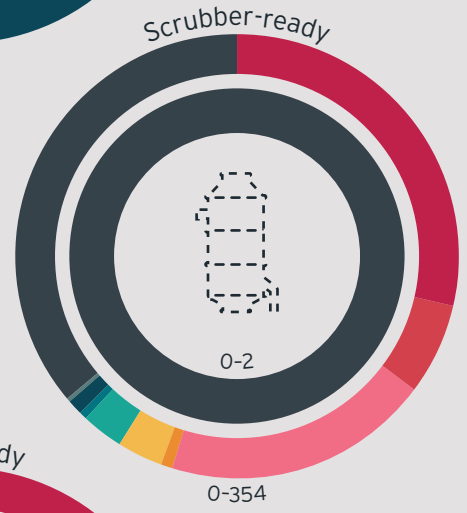
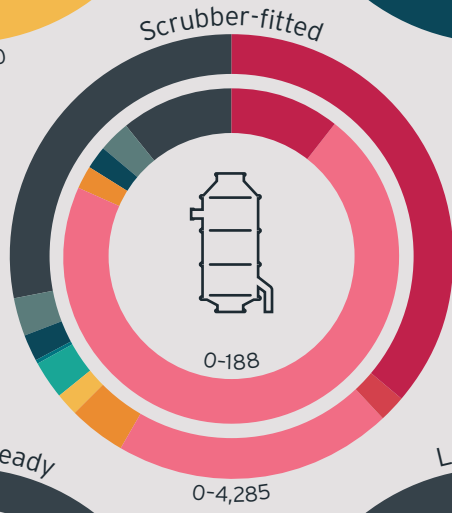
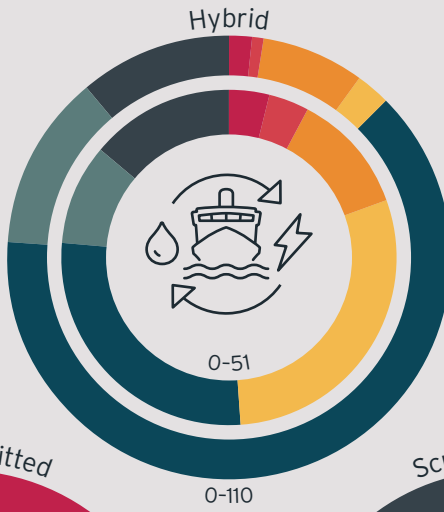
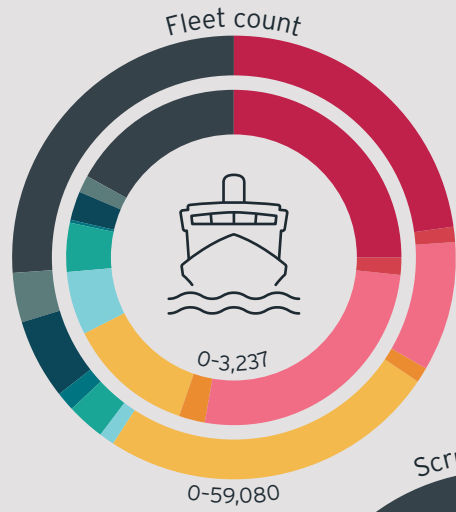
Ro-pax ship



Ro-ro ship

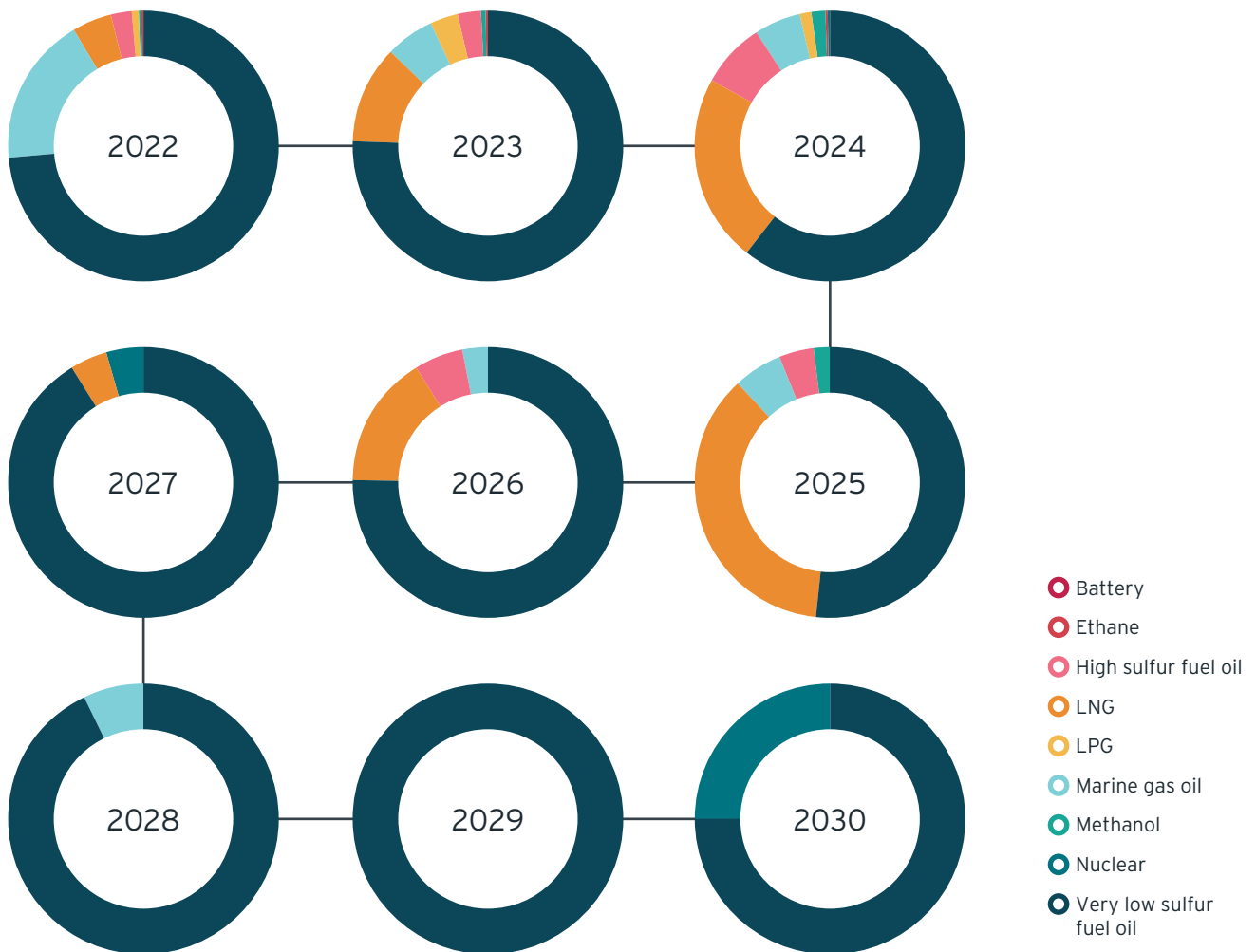


Tanker



Note: The outer circle shows the current fleet by ship type and primary fuel choice. The inner circle represents the orderbook.

Primary fuel choice for ships on order by delivery year



numerous supply projects have been signed around the world, such as in Belgium and Japan, but green mass production is an issue.

There are currently limited facilities to supply vessels with methanol, which has restricted the take-up in the market. It makes sense for those vessels carrying methanol as a cargo to also utilize it as a fuel.

However, developments in port infrastructure are unlikely with it being too expensive as well as bearing fire risks. That said, smaller-scale vessels, such as ferries and offshore support vessels, may see uptake, whereby they are likely to be supplied via road trucks and small-scale bunker hubs.

Ammonia's advantage as a fuel is that it is not explosive. Nevertheless, it has a high toxicity, which could lead to possible environmental impact if something should go wrong, including through ammonia slips. This is a drawback as a marine fuel, since it does not adhere to IMO standards, and changes will be required in the International Code of the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk Code.

Currently, leading marine companies, such as MAN Energy Solutions, are making investments to develop engines that can use the fuel. The current orderbook shows not much real progress in the

future fuel debate – deliveries toward 2030 will nearly exclusively run on very low-sulfur fuel oil. It is therefore pertinent to make port operations as efficient as possible to reduce emissions of current equipment. In its *Reinventing the Aircraft and the Ship* report in 2019, IHS Markit advised of how collaboration between ships and ports can lead to efficiency gains and fuel savings.

First, better consultation between key stakeholders, such as the terminal, harbor master, pilots, ship operator, and captain, could enhance overall vessel efficiency. For example, by confirming berthing windows in advance.

Plugging into the local power grid enables the ship to power down. However, few ports around the world currently have this facility, and there are still no real universal standards in place – albeit being discussed and onshore power becoming mandatory in the European Union by the end of 2025. Widening of approach channels and deepening of channels can speed up turnaround and widen tidal windows, enabling ships to move more frequently.

Lastly, improvements in cargo handling, such as larger grabs on cranes and more efficient container-handling cranes, can reduce in-port time and produce short-term gains. ■

Expanding without taking up more space



PETER TIRSCHWELL

Vice president, Maritime and Trade and Supply Chain, S&P Global

THE COLUMN

A little-noticed piece of news out of Southern California in late-May spoke to the challenge faced by ports worldwide in fostering the efficient movement of freight across their ecosystems. On 25 May, a multibillion-dollar plan 17 years in the making to widen more than 30 km of one of the main highways leading to and from the Los Angeles-Long Beach port complex—the largest in the Western Hemisphere, was officially scrapped.

The Los Angeles County Metropolitan Transportation Authority, which had spent \$60 million studying the expansion, acknowledged that it must find ways to reduce truck traffic and the health impact on local communities without physically expanding the roadway.

Though the decision was unique in affecting only one port complex, many ports around the world surely can relate to the challenge now faced by the adjacent Los Angeles and Long Beach ports together with the surrounding region to effectively manage a growing flow of cargo in the face of static or slowly expanding infrastructure. For those ports and many others, this is reality. Why is automating cargo handling a major issue in current negotiations between West Coast dockworkers and employers? This is because terminal operators acknowledge that urban ports can no longer be physically expanded and therefore must densify their operations, which requires automation.

The issue is core to the overall role played by ports. If physical infrastructure cannot be expanded to accommodate growth, or, as is usually the case, it cannot be expanded fast

enough, ports do not have the option to simply throw up their hands and forgo aspirations for growth. Their economies and societies depend on the cargo moving through their facilities and if the demand is there, and alternative gateways are limited, the volumes will come and the problems will compound.

That is why ports are increasingly being forced to take the wider ecosystem into account when fostering more efficient cargo flow in the face of physical infrastructure

limitations. It is a big part of why many ports are embarking down the very rocky road of collecting and sharing data with the goal of enhancing efficiency through transparency.

The ports of Los Angeles and Long Beach, as one example, are intensifying longstanding efforts to transition more and more truck pickups and deliveries to 24/7 operations when terminal gate capacity, as well as capacity of roadways, typically goes unused.

The Los Angeles County Metropolitan Transportation Authority spent \$60 million trying to determine if the 710 freeway should be widened, but anyone driving down the freeway at midnight would find it to be clear of traffic. ■

“Urban ports can no longer be physically expanded and must densify operations”

ABOUT THE AUTHOR

PETER TIRSCHWELL is the vice president within the Maritime and Trade and Supply Chain division of S&P Global, publisher of The Journal of Commerce, JOC.com, PIERS maritime trade data, and JOC events such as TPM. He is responsible for all editorial content appearing in the division's media and events.



PROJECT FOCUS ARDERSIER PORT

Beg, borrow – or steel

Before 1980, Britain's big-ticket heavy industries – such as oil and gas – supported hundreds of thousands of jobs. A wealth of expertise still lies in these regions, which could help support the green transition

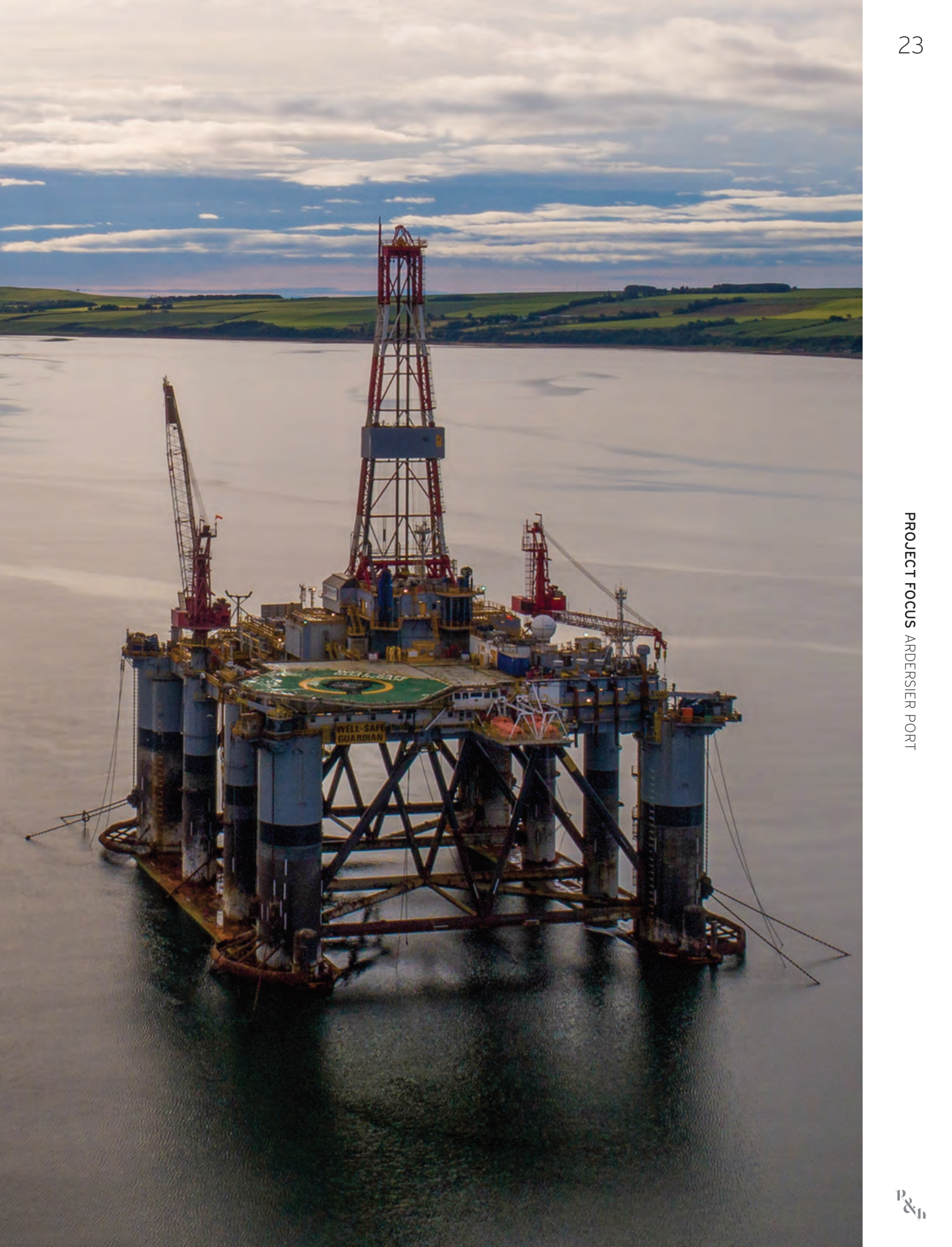
CHARLIE BARTLETT

At the turn of the 20th century until the 1980s, steelmaking, shipbuilding, and North Sea oil and gas played a dominant role in Britain's economy. Across Scotland and England's industrial north, they were the main source of economic output. Meanwhile, Wales had abundant supplies, and supply, of coal.

Today, the oil and gas sector is the lone survivor – but it, too, is being hit hard. In 2008, the industry supported some 195,000 jobs in Scotland; as of 2021, it was around 70,000.

Pictured: The graveyard of oil rigs in the Scottish Cromarty Firth.

Photo: Getty Images/Bloomberg Creative



Needless to say, the green transition is not going to do these remaining jobs any favors.

However, a movement has begun to prevent this goldmine of maritime expertise from going to waste. Speaking at a UK parliamentary committee in September 2021, Jim Skea, professor of sustainable energy at Imperial College London, said, "The question to emphasize is: what are the skills and competencies in the oil and gas sector at the moment that can be redeployed to assist us toward a low-carbon economy? The oil and gas sector is very good at getting corrosive liquids and gases through pipes, managing the geology under the surface, and managing big, complicated, risky technical projects."

These disciplines "will be needed as part of a low-carbon economy," he added, "if we are thinking about the movement towards hydrogen clusters."

A false start

It might be too soon to say that some of Scotland's disused facilities are waking up. However, at least, work is under way to rouse them. In Greenock, a community near the mouth of the River Clyde, a scheme was announced late in 2021 to revive the 20-year dormant Inchgreen Dry Dock, to be a green decommissioning facility for up-to-Panamax-size vessels.

At the time, Michael Dixon, Atlas Decom managing director, said that firm agreements had been made with two container lines. "We know that there is a strong labor pool in the area, and that's what we'll be looking to tap into," he said. "We appreciate that it is decommissioning rather than building."

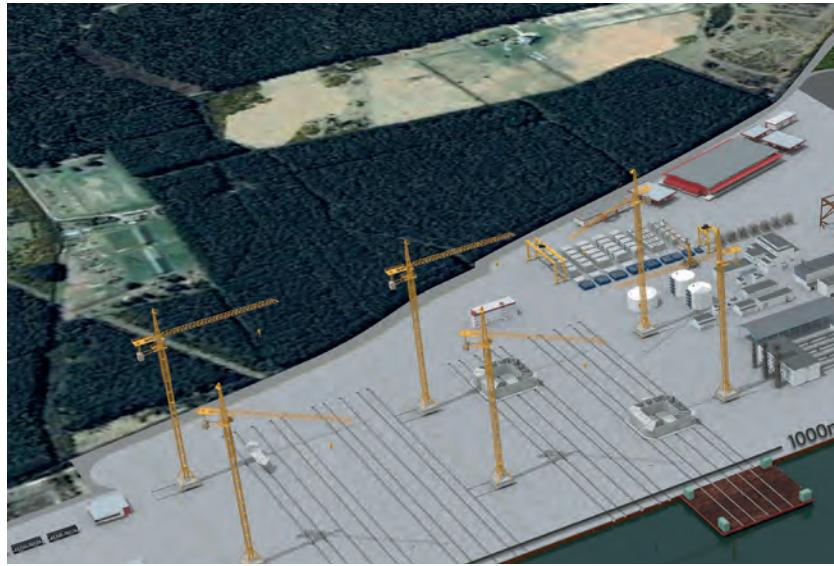
Key to the drydock's business case was the hope that its operators would get their hands on recycled steel. However, the timing of the announcement was not ideal as it coincided with container vessels in that size range picking up ridiculous spot charters of \$200,000 per day.

Since then, that particular insanity appears to be normalizing; but the work has not materialized, and 18 workers were laid off in March 2022.

This is a disappointment not only from the point of view of the 100 or so jobs the yard was expected to create, but also for the environment. Steelmaking is a massively carbon-intensive process. It is responsible for around 8% of man-made CO₂ emissions – more than double that for which the maritime industry is on the hook.

In 2015, Thai-owned SSI closed the Redcar steel mill in Teesside despite the consensus among European countries that steelworks is a strategic necessity, and in an irresistible metaphor for industrial decline, the UK has become Europe's biggest steel scrap exporter. In 2020, it was second only to the US and Japan, exporting about \$1.54 billion of ferrous waste or scrap.

Primary steel production using virgin steel generates about five times as much CO₂ as making things out of recycled scrap steel. Given such an abundant supply of scrap, then, why does primary steel production account for as much as two-thirds of the UK demand?



Pictured: CGI of the Ardersier renewables hub. Photo: Ardersier Ports

Pipelines into ploughshares

However, there is another Scottish project under way that could help to restore this balance. The Port of Ardersier, near Inverness, used to be operated by McDermott Construction as a major fabrication yard for oil rigs, supporting 4,500 jobs during its heyday in the 1970s. The 162-ha site has lain dormant for decades since. Now, Ardersier Port (Scotland) Ltd, which purchased the site in July 2021, wants to revive it. The company has committed to turn the disused brownfield port into an offshore wind industrial hub. It will consist of an offshore wind turbine construction and staging point,

but also a manufacturing facility for their concrete foundations.

As part of the ScotWind auction in January, the Crown Estate awarded the Floating Energy Alliance, a consortium of BW Ideol, Elicio and BayWa r.e, with a lease for the NE8 sea area. The consortium is now leasing a 36ha area of the port for manufacturing of its concrete floating barges.

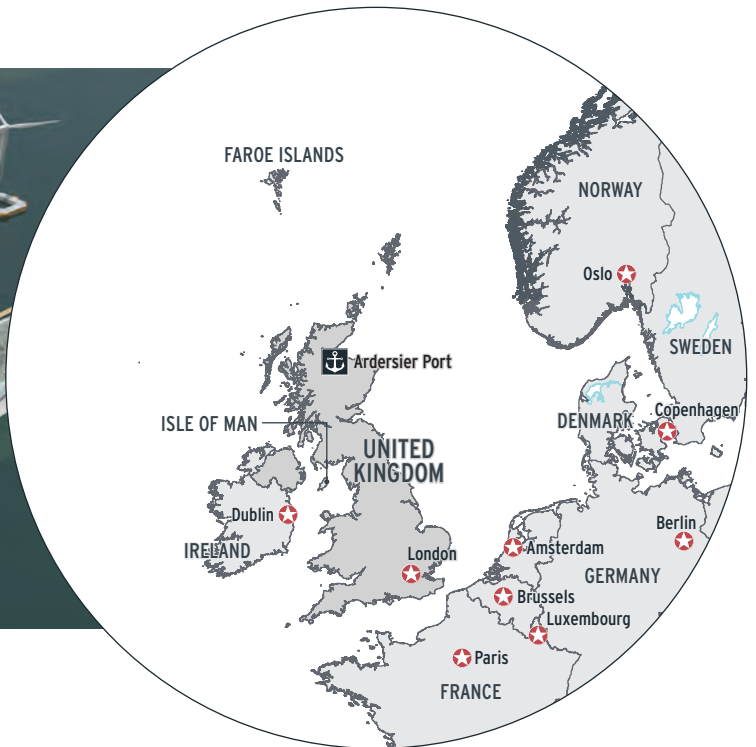
Capital dredging work is now under way, with 2.5 million m³ of sediment to be removed from the port's access channels at a cost of US\$25 million. In true nothing-wast-




ed style, the sand from the dredging operation will be used to make the concrete turbine foundations.

However, Ardersier port will be home to a high-tech steel plant – the first newbuild plant in 50 years. Central to the plant's business case is the advanced electric arc furnace, which will be powered using energy from the very turbines Ardersier is being rebuilt to install. Additionally, rather than virgin steel, it is going to reclaim those oil rigs it built in the last century.

It is expected that the decommissioning work will provide around 100,000 metric tons of scrap steel every year, which will be used to build wind turbine foundations. The symbol-

"It is expected that decommissioning work will provide around 100,000 metric tons of scrap steel every year"



 Main port
  Capital city
  International boundary

Source: IHS Markit

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ism is apparently not lost on Steve Regan, the port's co-owner. He said to local press in December 2021, "At Ardersier, we can lead the UK's Green Industrial Revolution by using circular economy practices to deliver new low-carbon infrastructure built on the by-products of our oil and gas past."

"This strategic approach has been backed by a recent independent report by Zero Waste Scotland and once complete, our green steel mill will be revolutionary: it will be the only place in the world where the scrap from decommissioning is processed into steel," said Tony O'Sullivan, Regan's business partner. "Once operational, this plant alone will generate 300 high-quality permanent low-carbon jobs."

Regan told *P&H* that the company is in talks over a potentially major hydrogen-based project, as well.

Rising from the ashes

However, Ardersier's plan is not just poetic; it is pragmatic. McKinsey & Co's "Decarbonization challenge for steel" report finds that firing EAF plants using renewable energy, recycled steel as a feedstock, and renewable electrolyzer hydrogen to replace natural gas in the production of direct reduced iron (DRI), a steel precursor, is the best way to eliminate CO₂ from steel production.

"The process replaces fossil fuels in the direct reduced iron production stage with hydrogen produced with renewable energy. It represents a technically proven production method that enables nearly emission-free steel production," report authors Christian Hoffmann, Michel Van Hoey, and Benedikt Zeumer wrote. "All major European steel players are currently building or already testing hydrogen-based steel production processes, either using hydrogen as a pulverized coal injection replacement or using hydrogen-based direct reduction."

The good news for the UK is that it may soon have renewable energy and hydrogen in abundance, thanks to the booming offshore wind energy sector. In characteristically blithe fashion, Prime Minister Boris Johnson said in 2021 that he wants to make Britain "the Saudi Arabia of wind," and the ScotWind auction is about to do wonders in this respect, having leased 8,600 sq km of sea area and a potential 25 GW of turbine

capacity – more than half the day-to-day grid power demand of the UK. As of 2022, plans are in place for double, with the UK's total offshore wind pipeline standing at 86 GW.

Experts said Britain's area of the North Sea could harbor as much as three times the UK's total power demand.

To fully utilize this would build in such a buffer of capacity that load-leveling – measures to overcome the intermittency of wind power – would become a moot point. Meanwhile, however, hydrogen is being examined as a load-leveler for offshore energy, as well as a way to decarbonize "'hard-to-electrify' UK industrial sectors", according to the government's Hydrogen Strategy. It is also being touted as one method to ease the cost of windfarms very far out to sea, which might otherwise be prohibitive owing to the vast extents of cabling required. French company Aquaterra Energy wants to reuse old oil and gas assets "reaching their stated end of life – from the North Sea to the Gulf of Mexico, the Middle East, and Southeast Asia" in an even more direct fashion than Ardersier, converting them into seawater electrolysis platforms to make hydrogen. These would then be served by hydrogen-carrying feeder tankers to transfer the gas to shore.

With the right investment, this could grant the UK an entirely new export landscape – not only comprises electrolyzed hydrogen, but also, green steel.

Scotland's expertise in offshore platforms, subsea work, floating structures, and construction could play an invaluable role in Britain's future decarbonization, and ultimately that of other countries as well. It would be a crime to only leave it on the scrapheap. ■





Trickling through

Ports along the Danube River are backed up as the region tries to get grain out of the Ukraine following the Russian blockade of the country's seaports. The United Nations is trying to broker a deal to reopen ports such as Odessa. To allow this, Russia has said it wants sanctions lifted while also accusing Ukraine of mining its own waters.

In Ukraine, trucks line up near the Port of Izmail, hoping to offload their cargo and out the world's fourth-largest wheat exporting country.

Those alternative shipping methods are hampered by the lack of infrastructure that cannot cope with the sudden demand. When trains reach the border of Ukraine toward Europe, cargo has to be unloaded as the country's Soviet-era train gauges are bigger than the European ones.

Off the Port of Sulina, ships also wait to cross the Danube River toward Ukrainian ports. "We have no respite," one of the pilots told AFP, while ship mechanic Mihai Calin said "a record" 400 boats passed through Sulina in May.

Transport ministry official Ion Popa said to Reuters that traffic in May tripled compared with May 2021. At the same time, Vadym Denysenko, an interior ministry adviser for Ukraine, said the rate of grain transshipment had increased fourfold compared with before the conflict.

Timely export of stored grain is needed as the harvest is due, which will fill up silo space.

The conflict is exacerbated by allegations that Russian-flagged ships have been transporting Ukrainian grain to Russian ally Syria, satellite imaging company Maxar Technology confirmed.

According to S&P Global Commodity Insights, "The volume may be as high as 1 million metric ton, according to market sources".

For 2021, GTAS Forecasting from S&P Global Market Intelligence estimated exports of Ukrainian wheat to be 21.2 million metric tons. ■

The IAPH and the Seafarers' Charity have set up a fund to support Ukrainian port workers and their families. Donate here:

bit.ly/PortWorkerAppeal

Pictured: Cargo ships docked along the Sulina Canal, a river channel between the Danube River and the Black Sea, at the Port of Sulina, Romania, on Saturday, 4 June 2022. Photo: Andrei Pungovschi/Bloomberg via Getty Images



PERSPECTIVE RISK MODELING

Ports need to invest in research to respond to climate change

Since the earliest recordings of history, ports have been seen as the gateway to the outside world. Nothing much has changed since. Ports still form an integral part of global trade in modern society. More than 90% of the world trade volume is transported by sea, and therefore, ports are regarded as the main gateway to global supply chains, as well as trade-led development.

What has, however, changed, are the conditions ports work with, including climate threats such as extreme storms and changing weather systems, which have a significant impact on coastal zones and infrastructure. Owing to its exposed location, a port is vulnerable to these threats and more so to those associated with global warming and climate change. Rising sea levels, increasing storm surges, extreme winds and waves,

and coastal flooding are among a few climatic hazards that adversely impact port operations and cause extended down time. Given the critical role of ports, it is becoming a matter of strategic importance for ports to enhance their resilience to these threats.

Starting to prepare

It is hence essential that port authorities and operators start prioritizing research and innovation into smart technology, sensors, data networks, artificial intelligence, and modeling to help plan for changing needs resulting from climate change. Ports in Europe and Asia have already started preparing for climate change, as extreme weather events are set to increase in frequency and intensity.

Unfortunately, most African ports are lagging behind and will experience significant disruptions if the future effects of climate

change are ignored. The majority of South Africa's port infrastructure was designed when climate change was neither a reality nor even a consideration. Design criteria used at the time have become outdated and may not be applicable soon.

Rising sea levels is considered to be one of the most detrimental phenomena that can impact port infrastructure and operations. While it might seem arbitrary in many instances, it is the secondary effects that are of concern. As the mean sea level rises, so do the associated extreme sea levels, allowing storms of greater magnitude to reach the ports before being dissipated. For this reason, research into the optimal upgrading of current infrastructure is becoming essential. Research into port resilience should, therefore, include re-evaluating the size and type of armor units, height of breakwaters, and resilience to overtopping.



ABOUT THE AUTHOR

CARL WEHLITZ, senior engineering researcher, and Eugène Mabilie, research group leader, for Coastal Engineering and Ports Infrastructure at the Council for Scientific and Industrial Research (CSIR) penned this article. The CSIR is one of the leading scientific, technology, and implementation organizations in Africa.

In this regard, physical modeling can play an important role in testing various options before deciding on the best-suited solution.

Digital help

Technology has become integral in the way we operate and interact with one another, and the use of technology in all its forms is also essential if ports are going to adapt to the effects of climate change. The use of sensors and data networks can provide information to port authorities and operators, allowing them to change and adapt to their daily operations as events unfold. This is one form of mitigation, but it does not allow for longer-term planning and protection of vital infrastructure, such as breakwaters.

On the other hand, data provided by sensors can be used as input to model and build data sets that are invaluable for artificial learning and predicting future trends. By being able to predict the future changes in the frequency and intensity of extreme events, new design criteria for future coastal structures can be adapted and mitigation options for existing structures can be explored.

Research into coastal resilience should also focus on soft engineering solutions. Engineers generally think in terms of hard structures when it comes to marine protection, but a greater appreciation of eco-friendly alternatives is starting to gain acceptance. By understanding the local environment and

Pictured: Floods led to containers in Durban port toppling over.

working with nature, engineering designs can be tailored to meet the project business requirements, as well as the climate action goals for sustainable development.

More than the financial value

Regrettably, when it comes to research, whether it is physical or numerical modeling, or instrumentation, port authorities and other stakeholders are prone to focus on the costs. What is often overlooked is that the cost of research to obtain a viable solution is far less in comparison to the actual costs of infrastructure construction, or the consequences of key infrastructure failures. The challenge is that, in most cases, the quantification of catastrophic failure is difficult until it occurs. The question that should be asked is: Is it not more cost effective to spend money on research to prevent this? The data and knowledge gained from research are also as crucial as the final solution.

The recent events of coastal flooding in the KwaZulu-Natal province of South Africa in April 2022 should be regarded as a wake-up call to ports to start taking the necessary action. These events severely interrupted operations at the Port of Durban, which is one of the busiest ports of its kind in Africa. This high-

lights the fact that ports can expect climate change impacts, not only from the marine environment, but the terrestrial environment as well. The hope is that the recent floods at the Port of Durban will prompt port authorities and governments across the continent to invest in port research, development, and innovation into the effects of climate change.

Future set up

Ports throughout Africa need to engage with important stakeholders to determine what their perceived impacts of climate change are, so that a holistic approach can be put in place to counter these in future. For instance, the types of exports could change as land temperatures rise and seasons change. A region classified as Mediterranean could become more arid as winters become warmer and drier. There would be some adaptation and mitigation that would be applicable to most ports, but other adaptation would need to be very port-specific. Without a holistic approach, it is possible that some significant challenges might be overlooked.

The CSIR has a research group that focuses on coastal engineering and port infrastructure. This group has started to collaborate with industrial partners in South Africa and other global markets, looking at development and innovation in the coastal engineering environment to address challenges posed by climate change. ■



ABOUT THE AUTHOR

HOLGER PFRIEM is the business manager for Asia and Australasia at Dafo Vehicle Fire Protection and CEO for Dafo Asia. He has been working at Dafo since 2004 to save lives and livelihoods through fire-protection solutions.

How to

... keep up with evolving fire risks in ports

Protecting material handling in the port industry has never been more important, with record volumes being shipped through the world's gateways making it vital to keep disruptions of operations to a minimum.

The number of containers shipped per year is now estimated at 200 million, meaning fires, such as the one in 2021 at the Port of Shanghai, which led to the suspension of transporting high-risk goods for two weeks, will hugely affect supply chains and profits.

The effects of COVID-19 – and the necessity of continued operations from a distance – fast-tracked the adoption of automated vehicles in the ports industry, enabling a large portion of workforces to work from home with new technology. This is paired with the sustainable, worldwide push for electrification of vehicles and machinery across the ports industry.

However, these changes also bring about new fire risks, which need to be addressed to ensure maximum safety and minimal downtime.

Here, we summarize 10 essential steps to keep up with the evolving fire risks. ■

N°1



Understand increasing risks

If you are shifting to new types of vehicles being handled, it is important to understand risks they create before you integrate them into your daily operations.

This is even more essential if you are making the move to electric vehicles, as understanding fire risks that lithium-ion (Li-ion) batteries create is the first, important step to mitigate potential issues effectively.

As a result of the large amount of energy stored in Li-ion batteries, increased heat, mechanical failure, physical damage or overcharging can all lead to a process called thermal runaway, which, in turn can lead to extremely dangerous fires and explosions.

N°2



Update your risk assessment map

If you are introducing new autonomous or electric vehicles into your operations, it is time to re-consider your risk assessment map.

Because of the high-risk nature of ports, it is likely you will already have a risk assessment map.

However, it is important to update these once you acquire new equipment or machinery, as this will create new risks, which will need to be addressed.

For example, you should not charge electric vehicles or machinery near high-risk or flammable products because if there is a fire, it is likely to cause more damage.

N°3



Improve detection

As vehicles become more autonomous, the number of workers on site is reduced, meaning fires are more likely to take longer to be manually detected, by seeing or smelling smoke, for example.

Additionally, if your driver can activate a system remotely, this will be naturally slower than if they were on site, as the vehicle needs to communicate with operators, who then need to communicate back to the vehicle, to activate your suppression technique. This means high-quality detection systems are becoming more important than ever to ensure fires are detected as quickly as possible to reduce damage and downtime.


N°4





Consider battery chemistry


Because of the catastrophic potential of a Li-ion battery fire, if it reaches thermal runaway, understanding the battery chemistry of your electric vehicle is key to reducing the effects of a potential fire. Thermal runaway is an extremely volatile state in which the battery can produce its own oxygen from within, meaning traditional fire suppression techniques are not always as effective.


To protect against these risks, research from the Research Institutes of Sweden and Dafo Vehicle Fire Protection found that the most effective way to prevent Li-ion batteries from reaching thermal runaway is with an early fire-warning system and spot cooling.


N°5		Choose your suppression agent
<p>Choosing the right fire suppression solution to protect your autonomous or electric fleet is about more than just the device itself.</p> <p>For example, for electric vehicles, you will need a suppression agent that is designed specifically for electrical fires, which is able to extinguish the fire and prevent reignition – a huge risk for these kinds of fires.</p> <p>As well as being suited for your individual operating environment, it is also important to choose a non-corrosive suppression agent, to protect all of your vehicles following the activation of the agent, to minimize costs and damage to your equipment.</p>		

N°6		Reduce false activations
<p>False activations are a keyway through which downtime can be increased unnecessarily.</p> <p>If your vehicle's fire-detection system does not match your vehicles' chemistry, or detection is too sensitive, as a result of a reduced number of staff on site, your system may activate without a fire, affecting schedules and supply chains without cause.</p> <p>By choosing a system that has been matched to your new technology, you can reduce false activations, minimizing downtime, and ensuring your schedules are kept to as technology evolves.</p>		

N°8		
Do regular maintenance		
<p>Once a fire-suppression system is in place, this does not mean your work is done. Risks in the port industry are continually changing, as a result of the age of a Li-ion battery, or a change in operations, or the number of staff you have on site, for example.</p>		

N°9		
Train key personnel assessment map		
<p>Alongside regular maintenance, an important way to increase the effectiveness of your fire-suppression system is to train key site personnel.</p> <p>This includes informing those working on-site and remotely of the fire risks associated with new vehicles and machinery, in addition to how to respond to a vehicle fire – whether this is an autonomous, electric, or traditional combustion engine.</p>		

N°7		
Protect all equipment		
<p>As you integrate new technology into your port's operations, it is important to continue to protect all of your vehicles and machinery. Traditional combustion engines will continue to have their own risks, which will combine with the new risks of modern vehicles and machinery.</p> <p>Disregarding older, less valuable machinery is a recipe for disaster, as their risks continue to play a part in your site's overall risks, and as machinery gets older, they can be more likely to have problems that can lead to a fire.</p>		

N°10		
Consider the site as a whole		
<p>When you are introducing any new equipment onto your site, you will need to consider how it interacts with those working on your site and any existing machinery.</p> <p>This includes understanding where you are storing different materials, whether these are flammable, loose, or unknown, and how operations on your site will respond to the evolution of machinery technology.</p>		



ABOUT THE AUTHOR

ROSHAN ABEYESUNDERE is a Chartered Globe Management accountant, chartered marketer, and a fellow member of the UK Chartered Institute of Management Accountant and CPA Australia.

6:30
1

7:30
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10:00
1

Nine to five

Appointed as the chief financial officer for Fiji Ports in 2017, Roshan Abeyesundere is a strategic commercial finance leader who has significant international exposure. He is also the company secretary, playing a crucial dual role. Abeyesundere works outside of his customary working hours liaising with key stakeholders



The role of a CFO is quite challenging and if it is combined with heading the day-to-day company operation, it can mean working around the clock. Therefore, it is important for me to start my day being level-headed. After waking up, I pray and read the scripture for a bit before I have a cup of tea. All this helps me to step into the day with a cheerful and positive outlook.



A CFO is responsible for the company's financial wellbeing, including figuring out strategies for growth goals and revenue stream. I organize my day accordingly by checking emails and meeting schedules on my phone before coming to work. During this time, I prioritize and plan my meetings with the help of my assistant. Most days, further discussions are held on possible financial, legal, enterprise-level risk, projects, and board matters. This is the most opportune time to speak to key staff without distractions.



Being in an operational port environment requires being a jack of all trades and abreast with information on key projects such as infrastructure, information technology, and any happening smart and green projects as set out in the company's five-year strategic plan. Ahead of our schedule, the CEO will generally call to discuss projects, board papers, and key priorities. Strategic planning is also an important part of the role; the CEO and I work with the board to enhance the ports' capacity, efficiency, or general maintenance.



I have meetings on projects on wharf rehabilitation, digitization, finance, legal, risk mitigation, and others. This involves the reviewing and signing of key documents such as terms of references, contracts, and tender documents. Over the years, Fiji Ports has developed and implemented key financial strategies that have paved its way toward becoming a corporate entity that is consistently delivering a strong financial performance as well as striving toward its vision of becoming a smart green port for trade in the Pacific region.

11:00



This hour is dedicated to reviewing and approving finance capex and opex, as well as overseeing management responsibilities of Fiji Ports' 100%-owned subsidiary company Fiji Ships & Heavy Industries. Owing to aging infrastructure and impacts from COVID-19, it is critical to strategize and implement policies and initiatives to revive the once-thriving business.

13:00



The benefit of living on a small tropical island is the proximity of places. Every day I go home for lunch as it is only a three-minute drive. Given the busy work schedule, I try to meal prep on Saturdays to ensure I have a nice and balanced meal for every day of the week. This is also personal time spent catching up with family.

14:00



Over the years, I have developed better people management skills, because I have to trust and rely on them. Building brilliant minds and exceptional staff and managers are critical and therefore, it is my passion to coach and mentor some of the individuals within the two companies. I take this time to talk with staff about any issues or projects that they need assistance with so that this helps them to progress in their work and produce quality outcomes.

14:30



This time is spent to either develop or review board papers and reports. At any given year, Fiji Ports makes a submission to about 100 board papers on different topics that can be a combination of decision or information papers.

15:30



Further meetings and presentations are arranged on projects relating to piloting market share, business development, business intelligences, digitization, vessel traffic system, legal matters, and knowledge management. Currently, the priority is on the quality execution of Fiji Ports' five-year strategic plan that has six specific perspectives: governance; infrastructure; finance; organization capacity; environment and sustainability; and safety, security, and technology.

18:00



Every day, I try to leave the office on time or at least I remind myself to. The day goes by so quickly that some days, bringing work home cannot be helped. Usually this is when I start preparing and setting priorities for next day's work or when I take time to review work done during the day by the staff and see which needs attention or assistance. After that, I either catch up with my family again who lives in New Zealand or watch a good series or movie, or read a good book or magazine.

Striking an alliance

The April merger of the Ports of Antwerp and Zeebrugge to form the Port of Antwerp-Bruges signifies a new time to advance Europe's major export port, integrated chemical cluster, and container hub. Let us look back at the beginnings

TONY SLINN

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peaking to *P&H*, Jacques Vandermeiren, the new CEO of the Port of Antwerp-Bruges, said, "At the beginning of 2018, Antwerp and Zeebrugge port authorities began holding talks with a view to closer cooperation. These talks prompted the awarding of a joint economic complementarity

and robustness study to consultancy firm Deloitte and Laga."

"According to the study, the merger would make both ports more robust in existing fields, anchor employment, strengthen their roles in the region, and, by extension, internationally.

In addition, it would allow for a faster and better response to challenges such as economies of scale, energy transition, innovation, and digitalization."

"On 12 February 2021, the city of Antwerp and the city of Bruges reached an agreement to merge their respective ports. This was confirmed on 22 April 2022 by the signing of the shareholders' agreement. The ambition? We plan to further strengthen our position in the international logistics chain, take a leading role in the energy and digital transition, and at the same time create sustainable added value for society as a whole. Not just for the area of Antwerp and Zeebrugge, but also for all possible stakeholders in the wider national and international region. In short, to become a world port that reconciles economy, people, and climate."

History

It is a historic moment for the two ports that can be traced back to their founding centuries ago.

Port of Antwerp's history dates to the 12th century, the Scheldt River acting as its umbilical to the world.

Pictured: Old floating crane used from 1922 to 1940. **Photo:** Port of Antwerp-Bruges





VIEW FROM ASTERN ANTWERP AND ZEEBRUGGE

However, every time the Scheldt closed, economic decline followed with the absolute low point in 1585 when the city fell to the Spanish who shut down the Scheldt.

The port's unlikely savior was Napoleon during the French occupation. He built two docks behind a lock — Le Petit Bassin and Le Grand Bassin — a guarantee of calm water offering huge potential for large ships. This was recognized under the Dutch rule, with William of Orange naming the small dock the Bonapartedok, although he did name the large dock after himself.

A huge milestone was passed in 1863 when the Netherlands agreed to no longer levy tolls on Scheldt voyages toward Antwerp and never to close off the river. That spurred major port development, especially with steamships making trade and travel to Asia and Africa possible. Antwerp also benefited from its unique location 80 km inland, with both European imports and exports handled smoothly and quickly via rivers, rail, and roads.

Unlike Hamburg and Rotterdam, Antwerp escaped serious damages during World War II, but that was a mixed blessing. Outdated, Antwerp struggled to compete with the rapidly rebuilt and modernized Rotterdam and Hamburg port cities. However, the American Marshall Plan, as well as investments from the Belgian government's 10-year plan, heralded Antwerp's comprehensive expansion and regeneration.

Things moved quickly. The port swallowed the polder villages of Wilmarsdonk, Lillo, Oorderen, and Oosterweel. Multinationals from the chemical industry set up operations in the port area. Just a few kilometers from the Dutch border, construction of the Zandvliet Lock — then the world's largest — was under way. The result was that to the north, Antwerp literally reached its limit, the Netherlands border, leaving no further right bank growth options. Eyes left!

On the left bank, however, Waasland port's only entrance was the single Kallo Lock, a big risk if it failed. A further milestone was the opening of the enormous — 500 m long, 68 m wide — Kieldrecht Lock.

Dredging was also to play its role, with the Scheldt deepened in 2010, giving container ships a constant draft of 13.1 m and, at high tide, allowing ships with a draft of up to 15.5 m to sail into the port.

Antwerp continues to build new terminals, first on the right bank and then the Deurganckdok on the left bank. With over 5 km of quay, Deurganckdok is arguably the largest tidal dock in the world. However, it will not be the last, Antwerp assures *P&H*.

To Zeebrugge

The Port of Zeebrugge, which means Bruges on the sea, dates to the origins of the city of Bruges, the creation of the first navigable canals, and Bruges becoming a flourishing economic and cultural center in the late Middle Ages. But with the silting up of its Het Zwin — the lifeline for maritime accessibility — in the late 16th century, Bruges went into decline as ports, including Antwerp,



Hamburg, and Bremen, developed.

Hydraulic engineer Auguste de Maere's publication *D'une communication direct de Bruges à la mer* in 1877 sought to change that and gained the backing of King Leopold II. The Compagnie des Installations maritimes de Bruges was incorporated on 25 November 1895 to carry out the work and on 7 July 1907, King Leopold II inaugurated the port — but it was no easy start.

For years, Zeebrugge attracted only 200 to 250 ships, mainly owing to a lack of return freight, lack of adequate road and rail connections, and limited hinterland industry. Anticipated transatlantic passenger services also fell short of expectations.

However, during World War I, the Germans proved the importance of Zeebrugge's strategic location by using it as a U-boat base. However, it was subsequently reduced to rubble and a similar fate awaited at the end of World War II. It was not until 1951 that all the repair works were completed.

Zeebrugge's real breakthrough came in the second half of the 1960s, but along with the second maritime revolution — an increase in ship scales and emergence of techniques to handle unit loads, roll-on/roll-off traffic, and containerization. That prompted the government to massively expand the port between 1972 and 1985, including the outer port that was built in the sea and protected by two 4 km-long breakwaters, offering up to 16 m depth and the 500 m-long, 57 m-wide Pierre Vandamme Lock with water depths up to 18.5 m, giving access to Zeebrugge's inner port.

As a result, 10,000 ships have moored at Zeebrugge every year since 1985 and freight traffic grew from 14 million metric tons (MMt) in 1985 to 35.5 MMt in 2000.

"Combining chemical and industrial clusters will form a unique opportunity to address future energy challenges"

JACQUES VANDERMEIREN
CEO, Port of Antwerp-Burges



Pictured: Dockers at work in 1903.

Photo: Port of Antwerp-Bruges

From 2010, with globalization, Zeebrugge's expansion has ensured its position as a vital European port.

Growing together

Today, the unified Port of Antwerp-Bruges provides 74,000 direct and 90,000 indirect jobs and with an added value of nearly €21 billion (\$22.19 billion), equating to 4.5% of Belgium's GDP. It is by far the country's largest economic engine. The Antwerp-Bruges port has also become Europe's largest export port, logging 147 MMt per year.

P&H asked Vandermeiren what he saw as the immediate business opportunities.

"As a leading container port by tonnage — with 159 MMt/year — Port of Antwerp-Bruges aims to meet the need for container capacity due to global growth and recent developments in the international logistics chain. In parallel with the implementation of the Extra Container Capacity Antwerp [ECA] project, we're working on a Container Plan 22–30 to safeguard its competitive position. Elsewhere, we continue to invest in strategic infrastructure, including the Europa Terminal in Antwerp, as well as the new lock and Maritime Logistics Zone in Zeebrugge."

Part of that development includes playing a pioneering role in the hydrogen economy and building an import hub for green hydrogen. *P&H* inquired when construction would start, what was involved, and when the hub is planned to come on stream. "Combining the chemical and industrial clusters in Antwerp and Zeebrugge's location on the coast will form a unique opportunity to address the future energy challenges in Flanders and the wider region," Vandermeiren continued. "Our ambitions are vast: we will become Europe's leading import hub for green hydrogen and a catalyst for the hydrogen economy."

Figures back the merger

Antwerp's quarterly figures and extra container capacity confirm the merger's importance.

Antwerp's total throughput dropped 1.5% to 58.3 million metric tons in the first quarter of 2022. "Confirming the importance of responding to current challenges collectively and further reinforcing our position in the international logistical chain," the port stated, "the drop in the container segment, a fall of 11.6% in TEU compared to the same period last year, was partly the result of capacity problems, underscoring the urgency of extra container capacity."

In contrast, conventional general cargo grew by 49.1% compared with 2021's weak first quarter, holding firm on the export side. Ro/ro saw a slight growth — up 2.4% — but problems with the production of new vehicles affected throughput volumes.

Both dry and liquid bulk cargoes also saw rises. Throughput of ores, coal, and particularly grain saw the former grow by 11.1%, while liquid bulk rose 15.3%. Finally, chemicals throughput remained strong, seeing a 16.6% growth.

"By 2028, Port of Antwerp-Bruges plans to have the capacity to receive the first green hydrogen molecules on its platform. To this end, we're working to expand terminal capacity for existing and new hydrogen carriers at both port sites."

The work includes a hydrogen pipeline between the two sites, and toward the European hinterland that should ensure the port area as a whole — and by extension Belgium and a large part of Europe — can make use of this important carrier for renewable energy.

"Of course, our port doesn't hold all the keys in this regard, and relies on broad-based partnerships, both in the private sector and with governments, to make major steps in the years ahead," said Vandermeiren.

"For example, Belgium doesn't have enough wind or solar energy for the production of green hydrogen, so some of the necessary renewable energy has to be imported. That's why the port is looking at how it can support the production of green hydrogen abroad."

Vandermeiren amplified that the merger included a goal of "working in a sustainable manner."

"With the switch to a circular economy and major investments in energy transition, Port of Antwerp-Bruges is aiming for climate neutrality by 2050. For example, the unified port will continue and extend its project for the capture, storage, and reuse of CO₂. Via Antwerp@C, the first 2.5 MMt of CO₂ will be captured from industry on the port by 2025. It will be stored and eventually reused as a raw material for a wide range of applications."

"In order to ensure the prosperity of our open economy for current and future generations, the port is working hard to build a future in which we reconcile economic growth with people and climate. That's ground-breaking. Growth means jobs and prosperity for the Flemish region as a whole. Together, we can achieve more and achieve this objective more effectively," Vandermeiren concluded. ■

IAPH Sustainability Award winners 2022

At a ceremony during the World Ports Conference in Vancouver, Canada, this year's IAPH Sustainability Awards were handed out to six winners from around the globe, showcasing leadership in the quest to reduce emissions in and around ports





Climate and energy

DP World Posorja – Mangrove reforestation

As part of its global strategy “Our World, Our Future,” and the Ocean Enhancement Program, DP World Posorja (DPWP) began a mangrove plantation program on a 65 ha area with the Calisur Foundation in Guayas province, Guayaquil canton, Puná Island, near the Zapote community.

The program, which the jury described as “extremely impressive, well executed, and impactful,” evolved to stand as a key program of DPWP’s decarbonization strategy, called *Sembrando Vida*. The company delivered more than 150,000 red mangroves in September 2021 to the Ecuadorian environment minister, and to reach the goal of 105 ha of mangroves, DPWP started sowing 115,000 additional mangroves seeds in November 2020. Until now, 35,000 red mangroves seedlings have been planted. DPWP estimates a reduction of 3 million kg of CO₂ in 2024 from the red mangrove planting.

In addition to the emission reduction, this project creates jobs. About 6,000 people adjacent to the port are engaged in fishing. They mostly depend on the products that can be extracted from the mangroves, such as crabs and shells. Creating new mangroves and working together with the communities contribute to the protection of these habitats, allowing the development of a long-term strategy with fundamental stakeholders for DPWP.

The jury concluded, “An obviously worthwhile initiative in terms of reforestation and the habitat and wildlife benefits associated with such a project with a small-scale but strong local community involvement.” ■



Community building

Solomon Ports – Renewable energy for the community

Solomon Ports (SIPA) wants to support rural communities by providing sustainable energy for those who previously could not access any form of energy.

As part of the Green Port project roadmap, which the jury said is “very ambitious for a port of this size,” this new initiative will be extended toward deprived communities in all provinces in the Solomon Islands.

An investment of \$100,000 has been allocated for community projects to promote and encourage more communities across the country to use more renewable energy sources and reduce greenhouse gas emissions.

The jury said that this project is a “genuine endeavor in terms of communication with positive impacts at level of streets, school, market, and community.”

With the aim of becoming a zero-emission port by 2030, Solomon Ports has endeavored to promote and build a social cohesion toward establishing renewable energy for rural communities in the Solomon Islands.

Solomon Ports also takes pride in investing in its communities to achieve this goal by assisting them with solar outfits, installation and maintenance, and creating awareness on the importance of using renewable energy for a sustainable community.

SIPA’s board chairman Johnny Sy was in attendance to receive the award. “Many hours went into our initiative to help rural remote communities in the Solomon Islands have access to light, renewable energy sources, particularly solar energy, and it means so much to us to have our work that we are so passionate about and committed to, being recognized at this level.” ■





Health, safety, and security

Northport Malaysia – Journey toward HSE excellence

Northport has formulated a strategic roadmap to operate its business activities to the highest level of health, safety, and environment (HSE) standards in its journey toward achieving HSE excellence.

The journey started with the transformation phase in 2012 to promote mindset and behavioral change. In 2016, the focus was shifted to effective implementation to enforce all the actions toward achieving HSE goals.

In 2019, Northport embarked on sustenance and continuous improvement to strengthen the best HSE practices among its stakeholders.

Finally, the business resilience and continuity phase was enforced in 2020 to seal the commitment toward business continuity management.

Throughout the journey, Northport has embarked on various HSE initiatives, which include the establishment of a business continuity plan; strengthening port security with the use of drone and closed-circuit surveillance system; and the establishment of drugs, alcohol, and illegal substance policies to preserve the health, safety, and welfare of Northport’s employees and port users.

The IAPH Sustainability Award is not the first one the initiatives of Northport have been bestowed with.

Since 2017, the port has won numerous local awards given out by the Ministry of Transport and the Malaysian Society for Occupational Safety and Health.

The jury concluded, “A multifactorial and comprehensive assessment of a practicable roadmap to transforming approach and practices relevant to HSE. There is convincing evidence of positive impact and positive scope for sharing knowledge and experience.” ■



Digitalization

Collaborative project – PASSport

About 1,000 European ports fall within the scope of the directive. As a consequence, PASSport responds to the needs expressed by port authorities, harbor masters, and border-control authorities, which are active parties in the consortium and are directly involved in the definition of the proposed solutions.

PASSport is, among other aspects, being used for pollution monitoring, to support for e-navigation, for critical infrastructure protection, and against aerial and underwater threats.

Captured images are processed in real time by a local computer. Remotely piloted aircraft systems are equipped with high-accuracy global navigation satellite system (GNSS) receivers that are Galileo ready to provide a proper positioning and guarantee autonomous, secure, and continuous operations.

PASSport will be validated via five specifically designed case studies in the ports of Hamburg, Le Havre, Kolobrzeg, Ravenna, and Valencia. This collaboration is what ultimately convinced the jury.

Additionally, the jury said, “A detailed and well-supported program in terms of detail and explanation. Investigates a wide range of applications backed by a well-established validation campaign. The five partner ports provide credible trial and assessment scenarios. Useful data may well contribute to early warning and decision-making programs.” ■





Environmental care

Port of Hamburg – SeaClear project

SeaClear, short for search, identification, and collection of marine litter with autonomous robots, is an EU-funded project (2020-23) being trialed in the Port of Hamburg, Germany. The project is working on developing an efficient, cost-effective, and innovative solution to remove ocean litter. What impressed the jury was the use of autonomous robots that find and collect seabed litter. Underwater detection sensors allow the autonomous robots to operate under low visibility conditions. One robot identifies litter using deep-learning AI trained to differentiate between marine wildlife and debris. The collection is performed by another larger robot that navigates to the location where waste has been found and removes it using a gripper-suction device. This process is carried out in strict compliance with nature conservation standards.

The team also works with stakeholders from ports and coastal regions, as well as marine biologists, environmental activists, and the public to develop a globally deployable solution that actively contributes to maintaining and restoring the world's oceans.

For the jury, the "concept of robot to clear plastic is timely and worthy of R&D." It concluded, "It is strong technology but very much a work in progress in terms of practicality, the benefits to wider sector might possibly be restricted in application given varying hydrographic characteristics." ■



Infrastructure

Port of Vigo – Living Ports

Living Ports is a European Commission Horizon 2020-funded project to facilitate a large-scale implementation of industry-level ecological alternative to traditional concrete infrastructure at the Port of Vigo, Spain. In alignment with the EU Green Deal, Marine Directive, and Biodiversity Strategy for 2030, de-risking and scaling of environmentally sensitive industrialization projects is an urgent priority.

The project is designed to catalyze a fundamental change in the coastal and marine infrastructure industry's operations by shifting away from grey construction toward nature-inclusive infrastructure with structural and socioeconomic co-benefits.

This aspect is what the jury highlighted as best feat of the project, "This is an initiative bringing in new materials and stakeholders and is therefore one to look out for as this approach should become standard consideration in port infrastructure procurement."

Living Ports spans two large-scale demonstration sites with production having started in February 2022. It includes a 330 sq m ECONcrete sea wall and an underwater monitoring and community outreach deck developed by Cardama Shipyard to show citizens that the blue change is possible and build awareness accordingly.

Impressed with this approach, the jury said, it is "a very innovative project that balances environmental awareness with social good." The floating deck will be supported by five ECONcrete bio-enhancing moorings and 100 ECONcrete Coastalock units will provide coastal stabilization as well as habitat creation and ecological uplift. During the three-year project from 2021 to 2024, biological, structural, and first-of-a-kind noise pollution-reduction monitoring activities will be conducted between the Technical University of Denmark and ECONcrete.

The jury concluded, "This is a potential showcase for ecologically sustainable ports with a good vision." ■



Membership notes

We are pleased to welcome as new regular and associate members of the association:

Regular members

Northwest Seaport Alliance

- 📍 United States
- ☎ +1 253 428 8686
- ✉ lberinobis@nwseaportalliance.com
- 🌐 www.nwseaportalliance.com
- 👤 John Wolfe, CEO

Namibian Ports Authority (Namport)

- 📍 Namibia
- ☎ +264 64 208 2202
- ✉ T.Pesat@namport.com.na
- 🌐 www.namport.com
- 👤 Andrew Kanime, CEO

SSA Marine

- 📍 United States
- ☎ +1 206 654 3520
- ✉ sarah.mourino@ssamarine.com
- 🌐 www.ssamarine.com
- 👤 Knud Stubkjaer, CEO

Associate member

Bangabandhu Sheikh Mujibur Rahman Maritime University

- 📍 Bangladesh
- ☎ +880 01769 721000
- ✉ vc@bsmrmu.edu.bd
- 🌐 www.bsmrmu.edu.bd
- 👤 Rear Admiral M Khaled Iqbal, CEO

IAPH Women's Forum meets at World Ports Conference

The IAPH Women's Forum celebrated its 10th anniversary during the World Ports Conference in Vancouver, Canada, in May. At the beginning of the session, a congratulatory message from the founding chair, Naomi Kogon Steinberg, was read out.

The session itself was a dialogue on diversity between Namrata Nadkarni, CEO of Intent Communications, Geraldine Knatz, professor of practice of policy and engineering practice at the University of Southern California, and Dimuthu Samarakoon from Sri Lanka Ports Authority (SLPA), winner of IAPH Women's Forum Annual Meeting Scholarship 2021-23.

"I want to see my port be more successful in future, so we have to diversify. I think we have not taken the benefits from our strategic location. Because our ports are located just 20 km away from the silk route, I feel we have more capacity," said Samarakoon.

Knatz and Nadkarni added that while it is important to return to this forum at the 2023 World Ports Conference in Abu Dhabi,

it is vital to also collaborate in the meantime. "If you work in an organization where it is hard to get your boss to commit travel funds for you to go places, get your name on the IAPH committee list, and get out there to build your own reputation," Knatz said. To start this off, Nadkarni suggested that all 50 attendees connected with the IAPH managing director Patrick Verhoeven on LinkedIn.

During the session, the CEO of the Halifax Port Authority Allan Gray and marine environmental manager at the Port of Los Angeles Lisa Wunder also shared their thoughts on diversity and allyship.

In a follow-up plenary session, Samarakoon then made her original presentation that she was awarded via the scholarship. She introduced her port, and talked about her and the work of other women there, as well as specific diversity challenges and the diversity policy of SLPA.

Samarakoon and *Ports & Harbors* editor Ines Nastali then had a conversation about how the scholarship had benefited Samarakoon and how she sees her career in the maritime industry progress.

Finally, Nastali presented Samarakoon with her scholarship certificate. Congratulations, Dimuthu! ■

Samarakoon's presentation is available on the IAPH website:
@ bit.ly/3x6Accf



Pictured: Dimuthu Samarakoon, engineer at Sri Lanka Ports Authority and winner of the IAPH Women's Forum scholarship, received her scholarship certificate during the World Ports Conference in Vancouver, Canada. Photo: Mark Kinskofer

EVENTS TIMELINE 2022

7

JULY (7-8)

MedPorts Forum, Civitavecchia
Organized by the MEDPorts Association and
the Port Authority of Civitavecchia.
🌐 www.medports.org

2

AUGUST (2-4)

Brunei Indonesia Malaysia Philippines East
ASEAN Growth Area Conference 2022
Shangri-La Tanjung Aru, Malaysia
🌐 www.transporevents.com

30

AUGUST-SEPTEMBER (30-1)

Ports Australia Conference, Brisbane
National maritime event bringing together
maritime services and the political spectrum
🌐 www.portsaustralia.com.au



Ingrid Boqué Sastre has been involved with the IAPH since 2019. She explains her involvement, including her work within the Risk and Resilience technical committee

Q&A

INGRID BOQUÉ SASTRE
Officer, Hamburg Port Authority

Q: How did you become involved with the IAPH?

A: My involvement with the IAPH started in 2019 when Jens Meier was elected IAPH vice president for Europe. At that point, I was already coordinating the chainPORT initiative and many of the members also belong to the IAPH. I am part of the strategy team of the Hamburg Port Authority (HPA) and in this position, I have always had responsibility for international initiatives and projects. Coincidentally, when I visited Hamburg for the first in June 2015, the IAPH World Ports Conference was being held here. Although that week I only took a few days off from my former position at the Port of Barcelona, it was only three months later that I arrived in Hamburg with a few more suitcases and started working at Cruise Gate Hamburg, a subsidiary of HPA that handles the port's cruise business.

Q: What are your tasks within working with the IAPH and how much of a time commitment does this mean?

A: It includes organizing and conducting bilateral meetings with IAPH members from Europe and Africa, regional meetings, the IAPH Harbor Cafés, and more. In addition, since the restructuring of the IAPH technical committees in 2020, I represent the HPA in the Risk and Resilience technical committee. We have a lot of interaction with the members to get to know them better so that we can then develop a common agenda and a series of activities that respond to their needs.

Q: What are benefits of being involved in the committees?

A: The HPA has been an active member of the IAPH for many years (long before I started) and it is not a matter of tradition, but of seeing the benefits and growth that our organization has achieved and continues to achieve through engaged participation. We are all busy people in busy ports

and sometimes I see IAPH members or members getting concerned over having a lot of work to do in addition to their daily tasks and the fear of getting involved in a topic that they are already working on in another international partnership. This is precisely what IAPH committees take seriously and try to avoid. Each member can decide, depending on their resources, to what extent they can get involved. Based on my experience, however, the more I have been involved, the more I have gained professionally and personally.

Another benefit of being involved in IAPH committees is that members have the possibility of being part of relevant projects coming from other initiatives, as a result of the alignment that the IAPH seeks with other organizations. I would like to thank the committee chairs and the IAPH for their great effort to make work concise and meaningful. However, they cannot work alone. The main task is for us, as part of the committee, to contribute to its progress.

Q: What kind of collaboration would you like to see more of within the IAPH?

A: I would like to see more members actively involved in the committees, and I encourage them to do so. When I talk to members who are not yet active in the IAPH activities, I always say the same thing – try it out, be part of a committee, and assess for yourself if it is a tool that will help your organization. I am sure there are many ports that have very interesting perspectives and ideas to share but have not yet become involved. The IAPH took an important step toward fostering knowledge exchange through the Harbor Café. This format is a way for members to engage more in conversations and feel comfortable interacting with other members.

Q: What priorities do you see for the European region?

A: The #CloseTheGaps workshops and their respective discussions have been a big step toward answering this question. Efficiency, connectivity, and reduction of carbon emissions are priorities we share across Europe. Although the Port of Hamburg now moves more than 50% of its cargo by rail, the dependence on road transport in the European region is still prevalent.

I look forward to the forthcoming work we will do in the committees to take a step further in answering this question and to be able to offer a plan to address the gaps identified. I am confident that collaboration in this regard will be the key to developing a workplan to find potential solutions. ■

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SEPTEMBER (27-29)

Baltic and Black Sea Ports & Shipping
2022
Vanagupe Hotel, Lithuania
🌐 www.transportevents.com

18

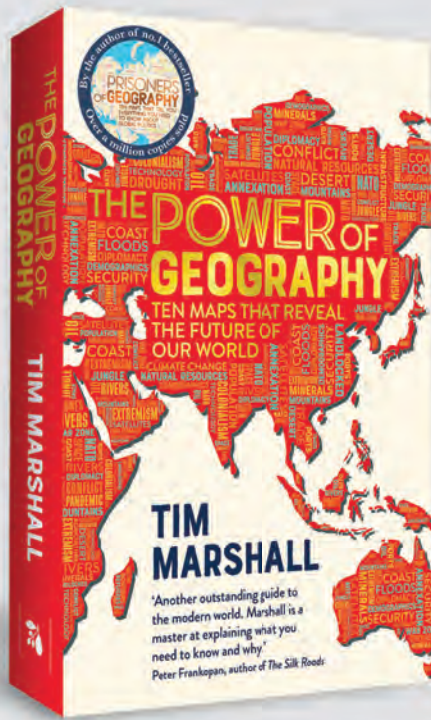
OCTOBER (18-20)

TOC Americas
Westin Hotel & Conference Centre,
Lima, Peru
🌐 www.tocevents-americas.com

25

OCTOBER (25-27)

ASEAN Ports & Shipping 2022
InterContinental Saigon,
Ho Chi Minh City, Vietnam
🌐 www.transportevents.com



BOOK AUTHOR

TIM MARSHALL, journalist and author, has more than 25 years of reporting experience. He has reported from 40 countries and covered conflicts in Afghanistan, Croatia, Israel, Kosovo, Libya, and Syria, among others.

THE REVIEW

The Power of Geography: Ten maps that reveal the future of our world

INES NASTALI



Sometimes, to know your place, you need to put things into perspective. That is what author Tim Marshall set out to do with his book *The Power of Geography: Ten maps that reveal the future of our world*. After his first book in this series, *Prisoners of Geography*, Marshall explains the history of 10 places – nine countries and space – and puts historic struggles into today's context to explain the economic potential of those places.

Readers not only learn about why geography matters “The starting point of any country's story is its location in relation to neighbors, sea routes, and natural resources” but also, as determined in the sub-headline of the book, how different economies will be able to make use of those in future.

While Marshall includes sea routes as vital denominator to determine the fate of a country and discusses who owns space, it would have been interesting to hear his thoughts about the world's oceans. This

way, once again, one might assume, what happens in the world's oceans somewhat gets forgotten in this equation.

That said, Marshall makes it clear that especially for island states, such as Australia, long-distance trade lanes and a strong navy to ensure sea lanes are being kept open are key to survive. In Australia's case, this is to keep mainland China and its expansion in the South China Sea at arm's length. Were the routes from Middle East into the South and East China Seas blocked, “Australia would run out of energy and grind to a halt within weeks,” Marshall wrote. A harsh realization given Australia's abundance of coal and other energy resources. Referencing similar global disputes, Iran uses the Strait of Hormuz to threaten trade lane access.

So, upon studying what Marshall has to say further, there is no shortage of examples showing the correlation between a country's economic success and its access to maritime trade.

Marshall became an authority on conflict by reporting from different political hot spots throughout his 25 years being a journalist.

His examples given in the book, underpinned by personal reflections and memories, are too many to list here.

So, to find out why he deems the Sahel the shoreline and the Sahara the sea, readers are encouraged to pick up a copy of *The Power of Geography* themselves.

Similarly, there are more than 10 countries worth looking at, especially given the current Russia-Ukraine conflict. It is probably unfair to bemoan that Marshall did not foresee this escalation when he worked on the book during the pandemic, so should I get the chance to offer a subject to look at for a third installment in this geographical almanac, I would be interested to hear what Marshall has to say about Russia. ■

The Power of Geography is available from bookstores and as e-book.

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