

ports & harbors

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Providing thought leadership on the role of ports in a connected world

Setting out the rules

Jutta Paulus, member of the European Parliament, discusses expectations around maritime and the EU emission trading scheme



Concrete developments

Replacing energy-intensive materials

Funding the future

Making the case for carbon insetting

Freedom of movement

Belgian port worker rules under scrutiny



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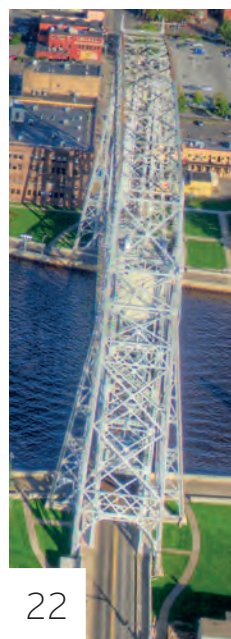
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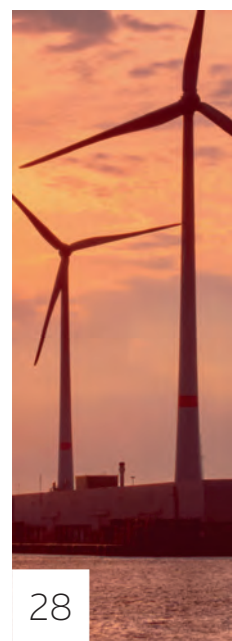
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EDITOR'S COMMENT



INES NASTALI
Editor

All for one and one for all

CONTRIBUTORS



SCOTT BERMAN
Contributor

The beat goes on for American ports on the Great Lakes. What is striking is the diversity and level of project construction and planning activity, including the intensifying focus on wind energy and ports' future roles as staging and servicing facilities. Those things are happening as stakeholders anticipate what further may be possible as a result of federal infrastructure legislation now being hammered out in Washington, DC. ■

Attending the annual conference of the Women's International Shipping Trading Association in Hamburg, Germany, was an unusual experience for two reasons: Firstly, it took place in an outdoor tennis stadium to allow for a COVID-19-safe in-person event, and secondly, there were rarely any men to be seen.

Of course, preceding the event was the association's annual general meeting so attendance was made up predominately by members. Quite contrary to the norm in our industry, organizers were faced with an overabundance of women on the panels — anyone who has ever attended a shipping event will attest, this is a rare sight.

Attending the event felt somewhat like I had landed in a parallel universe. There were many female shore-based lawyers, technical managers, shipowners and managers, as well as serving seagoing officers and captains and a few graduates who are trying to secure onboard roles.

The event was clearly proof that there are many talented, successful, and influential women, not only in shipping but along the entire maritime supply chain.

While in my opinion, women are more active in trying to redress the gender imbalance, at least at events such as these, it is important for a male-dominated industry to support the cause, otherwise change won't happen.

To me, this disconnect also reflects other gaps we face: between developed and developing states, different stakeholders along the supply chain who do not understand what the other part of the chain is doing, preventing efficient operations, or the disparate between the appreciation we crave from the general public while being a silent part of people's lives.

We therefore need to take care not to end up playing on separate teams — especially considering the wave of collaboration we have been riding on since the pandemic started seems to wash out with little gain.

Consequently, without everyone on the same side, working toward the same goal, we risk working in silos, only interacting with those that have recognized the problems, whether it be the lack of diversity in maritime, decarbonization efforts, or becoming more competitive.

But there is no point in preaching to the converted, so I wonder if we can only achieve this by introducing penalties for those that are not part of the narrative.

Because so far, the only consequence of not playing ball is reputational with diversity initiatives often being a PR exercise as there is no holding to account.

That is why we need the buy-in of leaders to exercise peer pressure. I can at this point only repeat two measures everyone can do to promote an inclusive industry: sign diversity charters and only speak at events that also have female panelists. Personally, I only attend events with women part of the panel — in addition to the moderator.

Diversity is also one element to make you more competitive, so it will play a role to help #closethegaps around port competitiveness. The IAPH World Ports Conference 2022 will take place under this umbrella but we want it to be more than that: A prompt. Registration opens in November so come, be part of the team:

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TONY SLINN
Freelance journalist

The most obvious way ports could initially get rid of polluting emissions was by supplying shore power to moored ships. Then it was replacing diesel engines with electric motors on major items of port handling equipment. Today it's with electrification contributing to IMO decarbonization efforts and evolving into a profit-making business plan. My interviewees, Lars Christian Larsen, MBF chairman, and Geir Bjorkeli, CEO of Corvus, take you to tomorrow's smart port world. ■



STEPHEN COUSINS
Freelance journalist

As an award-winning freelance journalist with a focus on the built environment, I have been investigating global efforts to reduce the impact of construction materials on the climate for some years.

Ports use a lot of concrete, steel, and aluminium for their structures and equipment so I thought it would be interesting to see how heavy industries are harnessing technology to bring down the associated emissions. ■

IN CONVERSATION WITH JUTTA PAULUS

Game on

With two events in November determining the path to decarbonize maritime emissions, Patrick Verhoeven, managing director of the IAPH, and Jutta Paulus, member of the European Parliament and rapporteur for the revision of the EU emissions reporting regulation, discussed setting out rules and mutual expectations

INES NASTALI

“W

ell, what we have been doing worldwide so far is like the game Mikado, whoever moves first, loses,” said Jutta Paulus, member of the European Parliament comparing efforts to agree on global regulations to reduce emissions in

maritime to a game of pick-up sticks, popular in Paulus’ native Germany. The game requires one to remove sticks from a pile without causing disturbance to the others.

“And that is obviously not the correct way to address the crisis,” she warned. Paulus is deeply ingrained in this topic as she, within the parliament is a member of the committees on Environment, Public Health, and Food Safety; Industry, Research and Energy; and Transport. She is also the EU rapporteur for the revision of the monitoring, reporting, and verification regulation (MRV), the EU’s maritime emissions and fuel usage report system.

“If anyone said to me, why don’t we bring in a global carbon tax, which is negotiated on the IMO level and applied worldwide to every single journey, I would say, let’s do it tomorrow,” she told *PEH*.

However, she knows that it needs the force of trailblazers to get things moving. Proof of this claim she takes no further than from her own house. “Progress at the IMO level is slow and therefore I think it needs a push from first movers. I would like to bring the attention to the MRV, which the EU brought in in 2016 to monitor and report emissions. And only after that, the IMO came along with its data collection system. I don’t think the IMO would have done so had there not been the EU moving first.”

Countering the argument that the planned inclusion of maritime in the EU’s emission trading scheme (ETS) will cause a patchwork of regulations to adhere to, she said, “I don’t think that the EU will say, we won’t participate in any global measure because we like our ETS so much. I think if there was a measure that was actually working and where there are no loopholes, you would of course say well, great shipping is covered in this global measure so we can take it out of the ETS again.”

This might be relieving to hear for the maritime industry, but Paulus also made clear that there is not much desire from the other included sectors to have maritime be a part of the deal. “When the talk started about including maritime in the ETS, it was not yet clear whether shipping would be a siloed ETS or whether it would be included in the general ETS where power production industries are in. Those now say the avoidance cost in shipping is much higher than in power production, which will hurt us but not shipping,” she explained, adding that “if there was a global measure, the commission would also receive pressure from the industry to take out shipping again.”

Getting everyone on board

The managing director of the IAPH, Patrick Verhoeven, agreed that it is good to have front running regions such as Europe who move ahead. “And I must say, I am very pleased to hear that potentially, once there is a global instrument, we would withdraw shipping out of the ETS again. I think that’s a good incentive to make progress at a global level.”

He added, “in the past year, we’ve seen more voices come to the IMO in favor of market-based measures and not least industry voices, which were much more reluctant in the past. We have now a proposal on the table, which will be discussed at the MEPC77 meeting in November, from the International Chamber of Shipping and Intercargo for the introduction of a carbon levy. Before, we already had proposals from the Solomon and Marshall Islands, which are of course among the vulnerable island states that are clearly concerned about the impact of climate. So, I see a drive going forward.”

However, what concerns Verhoeven is the status of those developing and the least developed states.





Those are very concerned about the economic impact of a levy or any market-based measures. “And that’s the reason why we see reluctance there. So, I think the key to unlocking the debate in the IMO is to determine what will be done with the revenue of a fund if it’s based on a carbon levy. Can that be used for investments to protect infrastructure against the impact of the climate? Can it be used for bunkering infrastructure for clean marine fuels? In other words, can it be used to help?” he explained.

“In that sense, I’m not too pessimistic that we are going to get there, maybe not this, or next year, but at least it’s accelerating,” he added.

For Verhoeven, proof of this can be found in the call that was launched by the Global Maritime Forum and The Getting to Zero Coalition in late September. A total of 155 companies in the maritime industry across the whole supply chain said we need to bring forward the 2050 decarbonization target by not 50%, but 100%. And second, we need policy measures including market-based measure to close the gap between the price of the fossil and clean marine fuels. “Even four, five years ago, I couldn’t have imagined those messages coming out from industry, so there is a switch,” he said. There is a need, “to find an answer for the developing states and the critical countries in Latin America and India, also mainland China, and, to some extent, the Middle East, who wonder what is in market-based measures for them. We need to convince them that those help their infrastructure, including the digital side, and to be more resilient. But that requires a lot of lobbying and effort, also from the developed countries.”

Shared responsibility

A missed chance to support this, Paulus admitted, came up in 2020. “I was a bit disappointed that the European Commission did not include the European Parliament’s proposal for the ocean fund in the MRV review. The parliament called for 50% of the revenues to be funneled into an ocean fund to help decarbonize shipping. Part of this fund should be set aside to protect marine biodiversity, which is chronically underfunded and that would also help especially smaller shipping companies,” she said.

Reminding *P&H* readers that there are also countries within the EU, for example in Greece, where “we have small family businesses run two or three ships, which are rented out and they don’t have the financial means to do anything about decarbonization, these are structures, which are

“The experience gained through LNG is not lost”

PATRICK VERHOEVEN
IAPH MD

worth supporting,” Paulus argued.

“I’m personally not in favor of concentrating on two, three, four major actors when the smaller actors need support, just in the same fashion as you have just mapped out for the developing countries,” she added. With ports being a puzzle piece in the supply chain game, “this is also true for other things. We hosted a delegation from the Port of

Antwerp recently and the port authority said, we do have to invest a lot because ships are getting bigger and bigger. This is not only about dredging but they also have to build larger terminals because its equipment will not be sufficient to de- and load those.”

For Paulus, this throws up an important question, “Who should finance the increase in size of ships in Europe? It’s mostly the authorities, so the ports are investing, which is basically taxpayers’ money. But what should we be doing in the developing countries where there are no such large capital funds available to accommodate this increase in size? So, this is also an issue, which I think should be tackled at the IMO level.”

However, as logical as this might be, there is an issue as Verhoeven pointed out, “The problem we have there is the competence issue at the IMO, which is of course fully competent when it comes to shipping regulation, but the moment that we go on shore, there are limitations and that’s where member states then say, well, this is our sovereignty.”

Speaking of potential funds, Verhoeven also foresees another complication. “How is this going to be managed? And who is going to allocate the funding? That’s where I see another potential legal and political discussion coming up that may make the implementation of a fund challenging. This however doesn’t mean we should give up on the idea, on the contrary, we have to step up the lobbying efforts.”

The bigger picture

While inclusion of port measures at the IMO level may be challenging, there are measures that all ports at least within the EU will have to cater to: ships have to be admission-free at berth from 2026. In the quest to become the first continent to reach net zero, this is one of the EU’s Green Deal goals.

“Basically, it’s left to the port, or, respectively, the ship-owners to say, we will set up shoreside electricity or the ship could run on batteries. We are more or less open, but please: we want clean air in our ports, which is something

that a lot of people would really benefit from,” MEP Paulus called on readers.

“We have multiple benefits here. For once it’s of course emissions, but it’s also the health of people, and that’s something a lot of people really tend to understand in the long run.” Trying to incentivize ports to get behind these measures, she argued that “this could also be an opportunity for ports, especially in global sales. If we manage to bring in quotas for synthetic fuels in the EU legislation, which is also up to discussion right now.”

Citing a possible example, Paulus explained, “I’m just picking numbers more or less on the basis of what the sector told me they expect they could do in 2030. I would suggest a 7% quota for synthetic fuels in 2030, which is still a decade to go. So, the industry has time to develop these solutions and scale up production. There are pilot plans already worldwide. If you’re looking at, for example, Chile, where you can produce solar electricity for a fraction of the cost, which you would have to pay in Europe, we could say, we will produce clean fuels there for shipping and this will present an opportunity for the global south to take part in the transition.”

As a reference, the German national cited the example of Germany phasing out harmful leaded fuel in the 1980s, where the government requested of the car manufacturers that only cars running on unleaded fuel are put to the market within a couple of years. “Of course, the industry said, we’ll never be able to do this. The German car industry will diminish and break down, but it didn’t. So, I think you need a clear deadline or clear quotas to get things moving.”

While these goals have been set for the short term, with maritime being part of the supply chain, it also has to look outward and think longer term to not fall behind others. “The CEO of the Belgium Chamber of Shipping said our sector has to pay attention that we will not be labeled as the dirty one, which is not willing to do anything because then people could say, why do we ship in the first place? Shouldn’t we produce much more locally? Isn’t there an opportunity to refrain from transporting so much around the world anyway? And so, he said, either we decarbonize or we might find ourselves at the back of the shelf, so to speak,” Paulus explained.

She added, “And of course will never abolish global trade. That’s clear, but people will pay increasing attention to this.”

While Verhoeven agreed that decarbonization efforts

are needed to push the industry, he countered Paulus’ outline. “This may come in future and that would be good for smaller ports, or short sea shipping, but for now I don’t see this picking up yet.”

The way forward

Lastly, looking at the very imminent future: the COP26 and MEPC77 meetings in November, Paulus urged readers to think about ramifications of dragging feet. “We have quite a number of countries, which are willing to step ahead, and it’s not only the EU. Joe Biden has also said he wants to work stronger toward climate neutrality. Even the UK does, so we will actually have a larger basket of regional measures if the IMO doesn’t get a grip to say ok, we’ll do something worldwide. This would also, in my opinion, be fairer because we then don’t have this whole discussion about carbon leakage and which port is doing what,” she said. “It’s also a good time to think about what we win if we delay the process on

the global scale? For the sector, it will be an additional administrative burden. It will be more difficult to plan routes, to become cost optimal, because you always have to keep in mind, which waters will I be in,” Paulus argued.

With the United Nations environmental program pointing out in its global methane assessment in May, that if industries manage to cut 45% of fugitive methane emissions worldwide until 2030, this will save about 0.3°C of global warming in the 2040s, she

also takes issue with one of the heralded solutions of the maritime industry. “This doesn’t fit at all with expanding LNG usage because LNG is of course burning much cleaner than heavy fuel oil, no doubt about that, but the problem of the fugitive methane emissions is, as far as I observe it, not at all solved, especially when running ships on LNG. So, I think it would be a very good idea to not waste more money on another fossil fuel when we have alternative solutions, which need investment,” said the studied pharmacist.

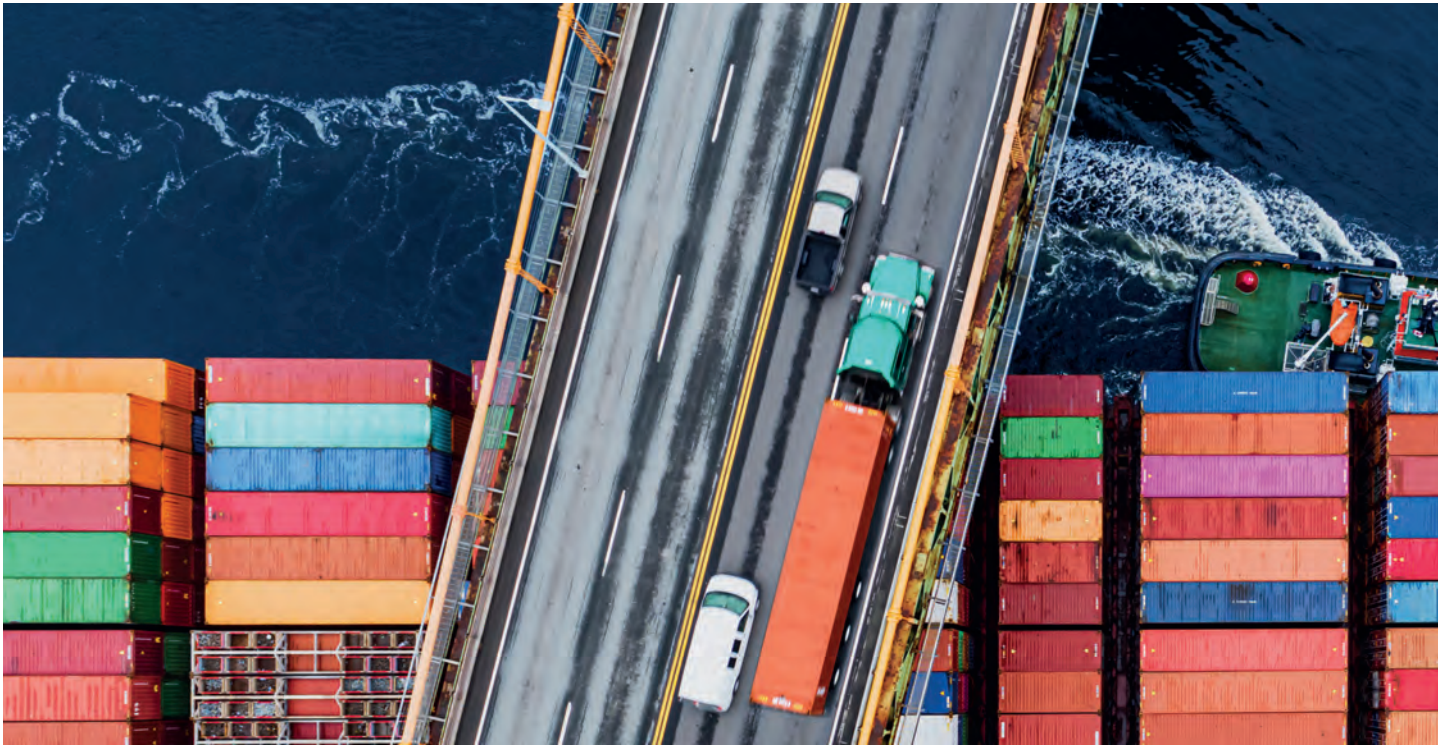
Acknowledging that LNG is a transitional fuel, Verhoeven pointed out that its development has helped, as “we learned quite a few things on how to deal with alternative fuels on the bunkering and safety site and these will be big issues also for these other fuels, so the experience we’ve gained through LNG is definitely not lost.”

With this advice, it is up to the maritime industry to decide which strategic game plan to follow. ■

“I’m not in favor of concentrating on major actors”

JUTTA PAULUS

Member, European Parliament



PERSPECTIVE FREIGHT FORWARDING

The paradigm shift: Joint forces toward sustainable sea freight

Freight logistics are an essential driver of global trade and economic growth. However, they also impact the environment. To create more sustainable logistics, we need to join forces with our customers because, as with most of our major challenges, we can only stop climate change together.

At Deutsche Post DHL Group, we base our actions around our company's purpose – connecting people and improving lives. With this principle at the heart of everything we do, we are making it our priority to be sustainable and have a positive impact on our climate, colleagues, and communities. In line with our mission to achieve zero-emissions logistics by 2050, the company is committed to leading the transition to clean and sustainable ocean freight transport and global freight transportation.

11% of global carbon emissions

Global freight transportation is currently responsible for 8% of global carbon emissions, rising to 11% if emissions from the logistics sites are included. If business continues as usual, emissions will double by 2050 as the demand for freight shipping is expected to grow threefold over this period.

In 2018, only 0.2% of the \$269 million in voluntary carbon offset investments went to transportation. The vast majority of these funds were invested in forestry, renewable energy, and other offsetting projects. These projects are certainly beneficial, but they do not reduce greenhouse gases emitted by the transport sector itself, nor co-pollutants such as black carbon, ozone, and nitrogen oxides. Besides, offsetting outside the sector reduces the incentive to innovate and

advance carbon-neutral freight solutions. It is time for a paradigm shift – an innovative approach to drive higher investment into greener technologies and strategies in the logistics industry. Carbon insetting offers a promising new pathway to future freight decarbonization.

Paving the way

While carbon offset compensates for climate impacts by funding a carbon reduction project outside the sector of impact, a carbon inset funds projects aimed at reducing carbon emissions in the sector where they are emitted.

Carbon insetting unlocks an enormous reservoir of untapped potential. If done right and at scale, it could result in a significant shift toward greener logistics technologies that could sharply reduce the



ABOUT THE AUTHOR

KATHRIN BROST has been leading DHL Global Forwarding's GoGreen department with its environmental protection program GoGreen since 2009. In this role, she has implemented the division's GoGreen strategy, emission, and efficiency reporting. Brost has also been instrumental in the development of several GoGreen customer offerings.

size of the industry's climate footprint. Although not everything can be replaced by a greener alternative directly, carbon inset allows funds from different stakeholders that invest into a greener transport mode independent on where they are located and on which lane they are shipping goods.

Alternative sustainable fuels such as hydrogen and biofuels are two examples of how we can move toward greener logistics. Scaling up the development and using these fuels will not only require new fleets of vehicles and vessels, but also new infrastructure for fuel production and distribution. Fleet renewal, engine retrofitting, and increased efficiency are further solutions that, when applied at scale, would lead to long-term structural improvements up and down the logistics supply chain and sharply reduce the industry's carbon footprint. Of course, marine logistics play a crucial role in this.

Leverage sustainable ocean freight

Deutsche Post DHL Group has been exploring renewable fuels as an important part of minimizing ocean freight's impact on the environment. Today, carbon dioxide (CO₂) neutralization for full container load (FCL) and less than container load shipments can be achieved by using maritime biofuels. The core of this approach initially developed by the GoodShipping Program is that

Pictured: Freight logistics and maritime transport need to work together to reduce emissions.

the heavy fuel oil usually used is replaced with sustainable marine biofuel onboard preselected container vessels.

Of course, the renewable fuels are benchmarked against key criteria to ensure that they are produced sustainably and do not compete with other needs, for example with food production for land use. Following strict sustainability standards, the waste-based biofuels must meet the requirements to be qualified as the cleanest biofuels currently available on the market.

With the launch of its GoGreen Plus sustainable marine fuel (SMF) service, which is now available for all ocean freight shipments, DHL Global Forwarding is not only making it easier to access sustainable deliveries for its customers, but also raises awareness for sustainable alternatives.

The carbon reduction is achieved by DHL Global Forwarding purchasing SMF

through partners and matching it with the amount consumed in the FCL shipment. Through the book-and-claim mechanism, there is no requirement for physical traceability of the fuel through a supply chain, as the environmental attributes of the SMF are separated from and can be purchased independently from the physical fuel.

In the long term, greater decarbonization of transport is key to driving positive change. Future-proofed logistics companies should think now about developing a stringent long-term inset strategy.

When paving the way toward greener logistics, collaboration across the industry is needed.

By jointly developing methods and guidelines for carbon inset

and reporting, we can create a framework that makes it possible to allocate funds for example for decarbonization projects in the logistics industry.

This would give the industry the opportunity to unlock a vital resource and significantly leverage to support the technological shift toward truly decarbonized logistics. ■

“Although not everything can be replaced by a greener alternative directly, carbon inset allows funds from different stakeholders that invest into a greener transport mode”





FEATURE CLEAN MANUFACTURING

Concrete developments

Energy intensive materials such as concrete, steel, and aluminum are intrinsic to port development with grave implications for the planet. Now, heavy industries are innovating cleaner manufacturing technologies and processes to limit their emissions

STEPHEN COUSINS

P

orts are under increasing regulatory pressure to cut greenhouse gas emissions associated with their operations, including from vehicles and equipment, ships at berth, to heating and cooling buildings.

However, arguably less understood or legislated for is the damage done to the environment by port construction activity, such as the creation of new quays, yards, warehouses and other buildings, and the deployment of new cranes and equipment.

These require huge volumes of fossil fuel as they are being constructed using hungry materials such as concrete, steel, and aluminum.

Concrete production is a huge emitter of carbon dioxide (CO₂), responsible for at least 8% of humanity's carbon footprint. It is the main construction material in the oceans, used to build over 70% of coastal and marine infrastructure, including ports, marinas, and coastal protection structures.

Steel, on the other hand, is used to produce marine structures such as sheet piles, jetties, warehouses, and reinforcement, as well as fabricate the many thousands of dockside cranes and port handling equipment.

Every metric ton of steel produced in 2018 emitted 1.85 metric tons of CO₂, which is equivalent to about 8% of global emissions, according to figures from the World Steel Association.

Emissions generated when materials are manufactured and transported are often referred to as embodied carbon. In the case of a building, it is estimated to account for at least half of the overall carbon footprint, including operational emissions generated throughout its lifespan. This highlights the importance of incorporating embodied carbon into any holistic approach to sustainability.

Smarter design and materials specification choices by port designers and engineers will be critical. Equally important are efforts by heavy industries to tackle CO₂ emissions at source by innovating cleaner manufacturing technologies and processes and several recent innovations provide an exciting snapshot of things to come.

Concrete

If cement manufacture was a country, it would rank behind China or the US when it comes to CO₂ emissions, generating around 2.8 billion metric tons of CO₂ per year.

The super-hot furnace temperature needed to produce cement is a major source of pollution and particularly tough to abate using traditional renewable energy sources such as wind and solar, which cannot deliver the required consistent high power. This has perpetuated reliance on dirty coal and coke.

However, a company backed by the world's richest man, Bill Gates, appears to have found a solution. Heliogen technology exploits concentrated solar power to generate temperatures of up to 1,500 °C, which would make it enough to replace fossil fuels in cement manufacture.

A combination of AI-based computer vision and sophisticated software automatically aligns a giant array of mirrors to reflect sunlight onto a small target mounted on a tower.

The start-up's first contract, with mining company Rio Tinto, is expected to see the technology deployed at a mine in California and the cement-making market has been identified by the firm as a priority.

Solar is a less viable option in cloudier climes, such as Northern Europe, where many decision makers are instead pinning their hopes on industrial-scale hydrogen to power cement production.

The USD8.5 million Fuel Switching Project in the UK, run by the Mineral Products Association and funded by the UK government, is investigating how a combination of hydrogen and plasma technology can significantly cut future emissions. An initial study showed how the combination of a plasma torch, biomass, and green hydrogen could deliver a net-zero fuel for a cement kiln.

Cement manufacture is not only about the energy you have to put in. It is also about the chemical reaction needed to produce the clinker and binder that account for around two-thirds of direct emissions in the sector.

To avoid these process emissions, switching to low carbon concretes that replace cement with industrial byproducts, such as fly ash or ground granulated blast slag (GGB) helps.

This is exactly what Econcrete does. The Israeli company's tide pools, sea walls, and concrete mattresses are not only more sustainable — ordinary Portland cement emits 931 kg of CO₂ per 1,000 kg cement, GGB emits 26.5 kg — but also reduce the number of invasive species. With local species that attach to the concrete acting as carbon sink, anthropogenic CO₂ can be absorbed.

The Port of Vigo, Spain, will be the latest port to receive a sea wall that is made from Econcrete, with the Port of San Diego having worked with the company since 2019 — a project shortlisted for the IAPH Sustainability Awards 2020.

While the company is growing, it suffered a tragic loss when co-founder Dr. Shimrit Perkol-Finkel passed away in March 2021 following a scooter accident in Tel Aviv, Israel. The 45-year-old marine biologist was a trailblazer for women in the male-dominated engineering and construction industry and thus, Econcrete will remain her legacy.

Another option to reduce the emissions impact of concrete production, backed by billions of dollars of investment, is to implement carbon capture usage and storage (CCUS) technologies, designed to suck the emission from the air and either transform them into new chemical products or store them underground.

The world's first full-scale CCUS project, Longship, is due to launch in Norway and will initially capture CO₂ emissions from a cement plant near Oslo, and move them by ship and pipeline to a subsea reservoir in the North Sea.

However, the technology has obstacles to overcome. Studies have shown that a coal plant equipped with CO₂ capturing equipment requires about 25% more fuel to generate the same amount of power as a conventional plant. This could wind back overall emissions reductions.

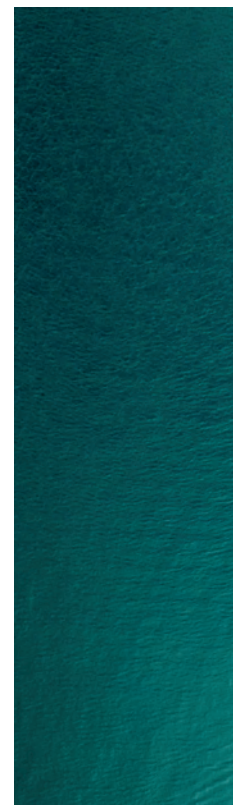
CCUS is also unproven at scale and years away from making a significant dent in pollution. Runeel Daliah, analyst on the Carbon Capture and Utilization Report by Lux Research told *P&H*, "CCUS could be successfully scaled up and validated by mid-2030s, which leaves around a decade or two for widespread adoption of other technologies such as electrification of the industry that provide higher decarbonization potential."

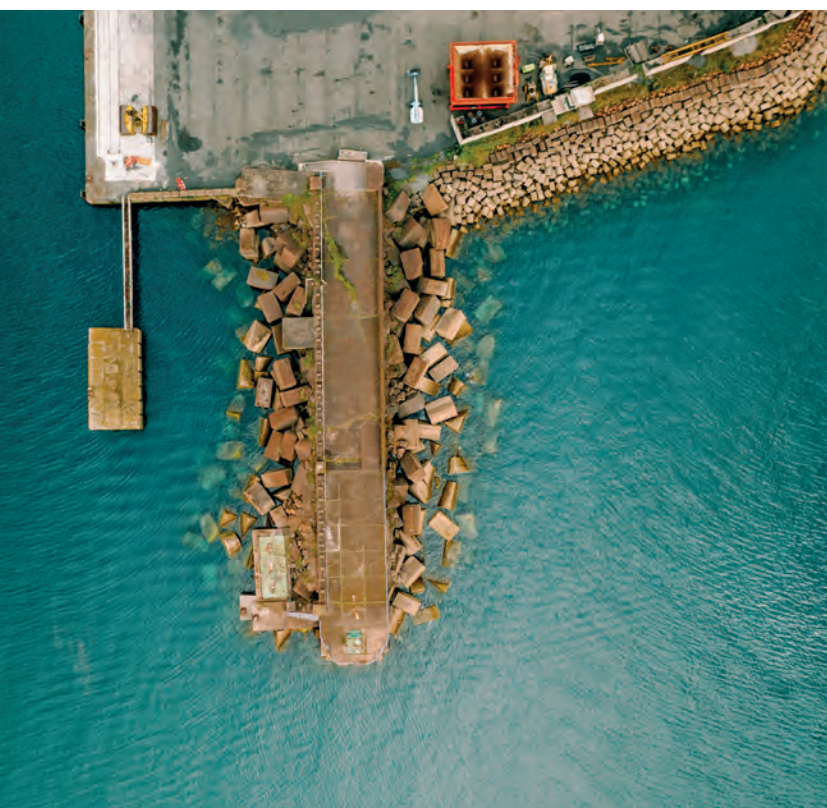
Steel and aluminum

Sustainable approaches to the steel manufacture will be critical to meet international climate commitments, and major players are moving ahead with investment and innovation to help the sector clean up its act.

One damaging aspect of steel manufacture is the smelting process, which typically occurs in coal-dependent furnaces. Electric arc furnaces (EAF) that run on electricity and use steel scrap or direct reduced iron as

"A CO₂-capturing coal plant requires 25% more fuel to generate the same amount of power as a conventional plant"





Pictured: A lot of concrete is used within the infrastructure of the port and surrounding areas. Photo: Getty Images/Orbon Alija

the main raw materials, offer a more environmentally friendly alternative and are already available.

As renewable electricity use scales up and grids decarbonize, EAFs are expected to play a much bigger role in steel production, particularly those that maximize recycling by melting more scrap.

The world's first delivery of green steel, made without coal, will take place in Sweden this year when the Swedish venture Hybrit sends initial trial batches to truck-maker Volvo before beginning full commercial production in 2026.

Opened in 2020, the pilot plant and storage facility aims to replace coking coal, traditionally required for ore-based steel making, with renewable electricity and hydrogen, with water as the only byproduct.

Vehicle makers are often at the vanguard of technological advancement and earlier this year, German vehicle manufacturer BMW announced that it will deliver the world's first solar-made aluminum.

The aluminum sector generates around 1.1 billion metric tons of CO₂ per year, equivalent to 2% of global human-caused emissions, mostly owing to reliance on electricity-powered smelters. Emirates Global Aluminium will tap energy from the massive Mohammed bin Rashid Al Maktoum Solar Park in the UAE to manufacture the metal and plans to produce 40,000 metric tons of green aluminum for export in the first year.

According to the International Aluminium Institute, decarbonizing electricity generation offers the biggest opportunity to reduce emissions in the aluminum sector, alongside the deployment of CCUS technologies.

Pat Hermon, technical lead on Sustainable Products at the Building Research Establishment, commented, "Aluminium production has always been an electricity-heavy manufacturing process. Smelting plants are often located close to hydroelectric schemes, notably in China and New Zealand, and Iceland has lots of geothermal to tap into and potentially very cheaply."

The world's largest aluminum producer China Hongqiao Group recently began production at a new hydro-powered aluminum smelter in Yunnan with plans to shift more aluminum production close to hydropower sources to support national decarbonization targets.

With the climate in crisis and many nations now committed to hitting net-zero carbon by 2050, port decision makers, designers, and engineers all have a key role to play in forging a cleaner path.

Part of the focus will be on seeking out products and materials with low embodied carbon, for example by checking environmental product declarations (EPD) or using low carbon concrete, timber, or reused steel from demolition.

For example, the port authority of New York and New Jersey aims to slash embodied carbon through several best practice targets.

Via the Clean Construction Program launched in 2020, designers and contractors are required to specify low carbon concrete, which reduces the cement content in certain concrete mixes by 25%. EPDs will be collected to ensure more environmentally focused material selection. Pilot projects will also develop low carbon concrete and materials.

The program will set up a platform for waste matching across port authority construction sites for concrete, asphalt, and soil, which will reduce waste sent to landfills and the number of truck trips required to bring materials to and from construction sites. Projects will also be required to operate low emissions on-site vehicles with all large diesel construction equipment compliant with at least a tier-4 model engine or newer so as to minimize pollution.

Designing leaner structures that require less concrete or steel provides another easy win, explained Stephen Richardson, director of the Europe Regional Network at the World Green Building Council. "Studies have shown that a lot of buildings are massively overspecified because engineers tend to go to the same standard sized steels, they're not designing with a mindset to reduce the amount to the greatest degree possible," he said.

In theory, there is no reason why steel carefully removed from an old structure cannot be reused as a new one, but certain practical and economic barriers currently prevent that from happening.

A smart, multipronged approach to sustainable port development should ensure the best results, but it remains to be seen if the collective will act fast enough to avert a climate catastrophe. ■



When debating this important question, in general, the key points to discuss are: How to make the incentive system relevant to environmental goals and how to make it attractive for the shipowner? "The polluter pays" principle is regarded in EU policy and elsewhere as an essential tool for advancing environmental objectives efficiently and fairly based on actual impact.

The Port of Bergen uses the Environmental Port Index (EPI) for the environmental rating of cruise ships. EPI gives a good starting point, with a ship rating after each visit to a port, emphasizing air emissions and climate impact. It is important to note that the EPI, as an organization, is neutral regarding how each port defines and implements its incentive system. The rationale for this is to respect each port's independence concerning pricing, call terms, and national legislation.

The economy is a potent remedy for improving ship performance, and weak incentive systems do not influence a shipowner's priorities in the same way as the more stringent system. If a bonus deducts from the port earnings, the opportunity for the port to give a rebate tends to be marginal. On the other hand, bonus-malus means that the burden and the advantage are put on the shipowners.



This opens the opportunity to create more substantial incentives.

The fees for cruise ships visiting the Port of Bergen vary from a standard rate to over 150% in the case of a zero EPI score, and minus 20% in the event of a 100 EPI score. A 150% increase in port fees may sound like a lot, but experience shows that ships have the ability to reduce the overall cost. By using low-sulfur fuel or LNG, by optimizing energy consumption, running nitrogen oxides and sulfur oxides scrubbers efficiently, or connecting to shore power, the EPI score quickly moves in a positive and cost-reducing direction.

Throughout 2019, the average ship improved its score with six points from the first to the 15th call. Individual improvements were even higher. The impression is that a good, transparent, and fair economic incentive motivates change.

The EPI reporting reveals a high potential for reduction of emissions. On average, individual cruise ships can reduce carbon dioxide emissions by 21% and sulfur dioxide by 10.5 kg/hour.

A strong port incentive can help us to release this potential. The sum of incentives from calls to several ports can potentially motivate the shipowners. ■



THE DEBATE

Should ports consider a bonus-malus system to calculate port dues based on air and greenhouse gas emissions of a ship?



Introducing different port dues based on environmental performance of a ship can be a good way to incentivize shipowners to choose environmentally friendly fuels or improve scrubber systems. Nonetheless, as it appeals to the public relations side of things for shipowners to be able to say they help to reduce emissions while saving money – a win-win situation.

However, while these efforts of ports and shipowners that subscribe to such a system is to be applauded, it might be not more than that: a PR stunt.

That is, unless it is being made mandatory to sign up to such emission-reduction scheme – and to have a unified system – for example, via the Environmental Ship Index. This is already hailed at IMO-level as the tool to use and has recently gained gravitas through collaborating with the Green Award Foundation.

But it has to come with a transparent proofing and verification system, otherwise I don't see significant reductions being achieved as some current schemes rely on companies to actively participate in a program – by registering their ships, for instance.

It is therefore another administrative burden for shipowners while also having to report emissions to the IMO and the EU.



Another argument against introducing a bonus-malus system is therefore the lack of transparency into reporting maritime emissions and the manifold of incentive schemes.

Currently, it is down to the port to set out and calculate the discounts themselves to maintain competition, so it is not certain that what is considered to be the favorable rate in one port, is also the cheaper tariff in another.

At the same time, some of these schemes only target the ship itself, ignoring other traffic in the port, such as trucks, losing some of the effectiveness and shedding responsibility of such a punitive system.

Hypothetically, if ships want to circumvent being penalized, this could also enable more polluting ships to call at ports without bonus-malus systems in place. First, this would disrupt and change current trade patterns, not aiding the current capacity crunch we see, and second, this development could put such ports at risk of becoming havens of polluting ships.

Consequently, only if this web of incentive schemes is woven to a secure net of one traceable and global system can a bonus-malus system be beneficial. ■

NINETY TWO

Readership results: Should ports consider a bonus-malus system to calculate port dues based on air and GHG emissions of a ship?

92%

8%

NOV/DEC | PORT DUES

POLL RESULTS

A clear vote for a bonus-malus system to counter emissions from ships in ports comes from the *P&H* readership. A total of 92% of respondents to our online survey, which is being shared via the IAPH's bi-weekly newsletter Insider, voted for the introduction of such a system.

Speaking of a motivation for shipowners, Even Husby from the Port of Bergen said, "Throughout the 2019 [cruise] season, the average ship improved its score with six points from the first to the 15th call. The impression is that a good, transparent, and fair economic incentive motivates change."

At the same time, introducing differentiated fees could lead to ships re-routing trade, adding to pollution and the current tight traffic. ■

JAN/FEB | PORT INFRASTRUCTURE

THE POLL



Given the capacity crunch we are seeing in the port landscape, is your country's port system up to speed to deal with surge events?

The past months have seen surge events in imports, resulting in capacity crunches not only in ports in Asia, but also the United States.

With infrastructure updates in ports taking years to come online, we want to talk about the resilience and adaptability of the maritime industry during unexpected events such as a pandemic or other disruptive crises.

For the next edition of *P&H*, we would like to know how prepared do you think your country's port system is to handle these events? ■

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

bit.ly/IAPHJanFebPoll



Geir Bjørkeli

Reduction of greenhouse gases is as much a challenge for ports as for shipping. P&H asked Geir Bjørkeli, CEO of Norwegian maritime battery manufacturer Corvus Energy, how electrification can be a part of the decarbonization puzzle

TONY SLINN

Corvus is responsible for several fully electric and hybrid vessels, but also has over 120 battery orders for rubber-tyred gantry (RTG) and other cranes in ports including South Carolina and Long Beach in the US and several Chinese ports, including Fuzhou, Yidong, Chang Shu, and Lianyungang.

It has also delivered more than 20 battery packs for shore charging stations and is working with Toyota on maritime hydrogen fuel cell development.

Getting into place

Talking about the situation currently and if ports are moving enough to use electrification to cut GHG and CO₂ emissions and promote sustainability, Bjørkeli said, "Some ports are very active, doing as much as they can."

However, he added, "The initial problem is having enough power. Even in Norway it can take five years to get cables into ports. There also needs to be a balance of power different batteries on cranes, tractors, etc. must be able to work together with the mains supply and should aim to form a smart grid. Without balance, ports can run into trouble." Bjørkeli therefore said that, "RTGs especially lend themselves to electrification. Emissions are slashed and savings in fuel of around 65% are possible. Additionally, electrical regeneration is available where you have equipment that lifts and lowers. But really, the whole port can be electrified." Not only ports, but the whole maritime supply chain comes with the opportunity to be electrified.

At the same time, Bjørkeli has encountered different attitudes toward this. "It varies between government-run and private ports – the latter are more positive," Bjørkeli stated. "Northern Europe, Singapore, Japan, the USA, Canada, China, and South Korea are the regions most open to electrification, with cruise ports especially seeing the opportunities despite the technical challenges."

While the cruise industry is careful when making investments and opting for innovative solutions, on the business side, it is paramount to question how sustainable and future-proof technology are.

Making the business case

"Batteries tend to last much longer than forecast," Bjørkeli replied, "and there are various business models. You can pay a fee to have batteries replaced when needed, for example. As for future proofing, we're pulling data from batteries all the time and take responsibility for what we call smart modularization. If you have to replace batteries, and their technology has changed, we'll make sure you can connect with the same interface."

That said, in the port equipment world, contracts sometimes run for 30 years, resulting in ports having little flexibility or incentive to turn to electrification. "We're willing to sign long-term contracts to take away that 30-year risk," Bjørkeli said. "We think of it as battery as a service, and I think ports will inevitably become fully electric with a lot more digitalization and automation. The advent of advanced software will see smart ports able to use batteries in many different ways to increase productivity and lower costs in that balance of power I mentioned." He added that in Norway, for example, "we have tariffs where electricity is cheaper at off-peak times, which is perfect for charging batteries that you can use during peak times. And if there's a mains supply problem, a smart port will simply switch to its batteries."

As for incentives, Bjørkeli is also optimistic. "Electrification dramatically decreases maintenance costs – by 30–80% – and increases uptime. Batteries take away engine idling while waiting; as a result, you don't have engine breakdowns and thus you reduce unplanned maintenance." Some ports, such as PSA Antwerp and Rotterdam, are already trialling electric yard cranes and tractors powered by hydrogen fuel cells.

Corvus has also partnered with Toyota to advance this technology. "Ports will need to provide hydrogen as a fuel for trucks as well as ships and develop as energy hubs,"

Bjørkeli insisted. "Like batteries, hydrogen is a way of storing clean energy, and one of our partners, Equinor, is working with electricity supplier BKK to build a liquid hydrogen plant near Bergen," he said. "We were very pleased when Toyota knocked on our door and asked if we could be its route into the maritime market. Batteries will work together with fuel cells, which don't like rapid load changes – batteries can take care of that."

Working together

Corvus is also a member of the Maritime Battery Forum (MBF). Battery integration, technology development, and economic aspects, along with an oversight of possibilities are among its objectives. Bjørkeli believed this agenda is "very important". "It's where we can discuss safety, common interests, and operational experiences.

MBF is expanding in North America and Asia, is about to hire a full-time general manager, and is forming focus groups to work on safety standards, port electrification, and the whole value chain."

Over the next five to 10 years, Bjørkeli sees electrification as "an unstoppable trend."

With pressure from end users, cruise lines, cargo owners, and politicians, investment will be in clean tech.

Lars Christian Larsen, MBF chairman, agreed and commented, "Electrification will increase significantly. It's hard to imagine how much, but you may quote me that it will be at least a quadruple increase of shore power connections in Europe and equally on the US east coast." "That may even be a conservative estimate, though it would be better founded by an investigation, but I base my assumption on the following key elements: all financial players are chasing green investments. Offshore wind farms are popping up demanding green solutions in the entire value chain, and the EU among other states, will set tougher CO₂ emission taxes on fossil fuels." ■

"We were very pleased when Toyota asked if we could be its route into the maritime market"

Zooming into emissions

With November playing host to MEPC 77 and COP26, which will discuss urgent action needed to reduce maritime emissions, a look into the EU's emissions data exposes inefficient ship types

INES NASTALI

In August, the European Commission published its 2020 Report on CO₂ emissions from Maritime Transport. "The monitored journeys emitted over 144.6 million metric tons of CO₂ into the atmosphere in 2019, slightly higher than the 138.5 million metric tons emitted in the first reporting period in 2018. These emissions originated from 12,117 ships in 2019 compared with 12,154 ships in 2018. Taken together, these ships represent around 38% of the world merchant fleet above 5,000 gross tonnage, and over 80% of them are either bulk carriers, oil tankers, container ships, chemical tankers, or general cargo ships."

The worst proportional footprint comes from LNG carriers at 6% of emissions while making up 2% of the total fleet. This is followed by ro-pax ships with 9% of emissions caused by a fleet share of 3% and container ships. The latter make up 16% of the fleet and emitted 33% of total emissions.

When looking at the share of emissions in ports, these amount to 6% of total emissions, with passenger ships emitting a staggering 43% of all berth-side CO₂ emissions, followed by chemical and oil tankers with 11% and 10%.

Shortly after the EU, the IMO member states approved the introduction of the IMO Ship Fuel Oil Consumption Database to collect similar data from 2019. Access to the database is not public and a global overview is thus hard to retrieve.

Consequently, this snapshot only focuses on trade from and to EU waters. However, looking at the global fleet, the proportions are similar with bulk carriers and tankers making up double the number of container ships. At the same time, there is a proportionally lower share of passenger vessels.

Mitigation efforts are crucial given that the IMO's fourth greenhouse gas (GHG) study concluded that emissions from ships rose by about 10% in 2018 compared with 2012.

The third IMO GHG study already warned that shipping emissions could, under a business-as-usual scenario, increase between 50% and 250% by 2050. ■

Ship type



Container ship



Oil tanker



Bulk carrier



Ro-pax ship



Chemical tanker



LNG carrier



General cargo ship



Ro-ro ship



Vehicle carrier



Gas carrier



Refrigerated cargo carrier



Container/ro-ro cargo ship

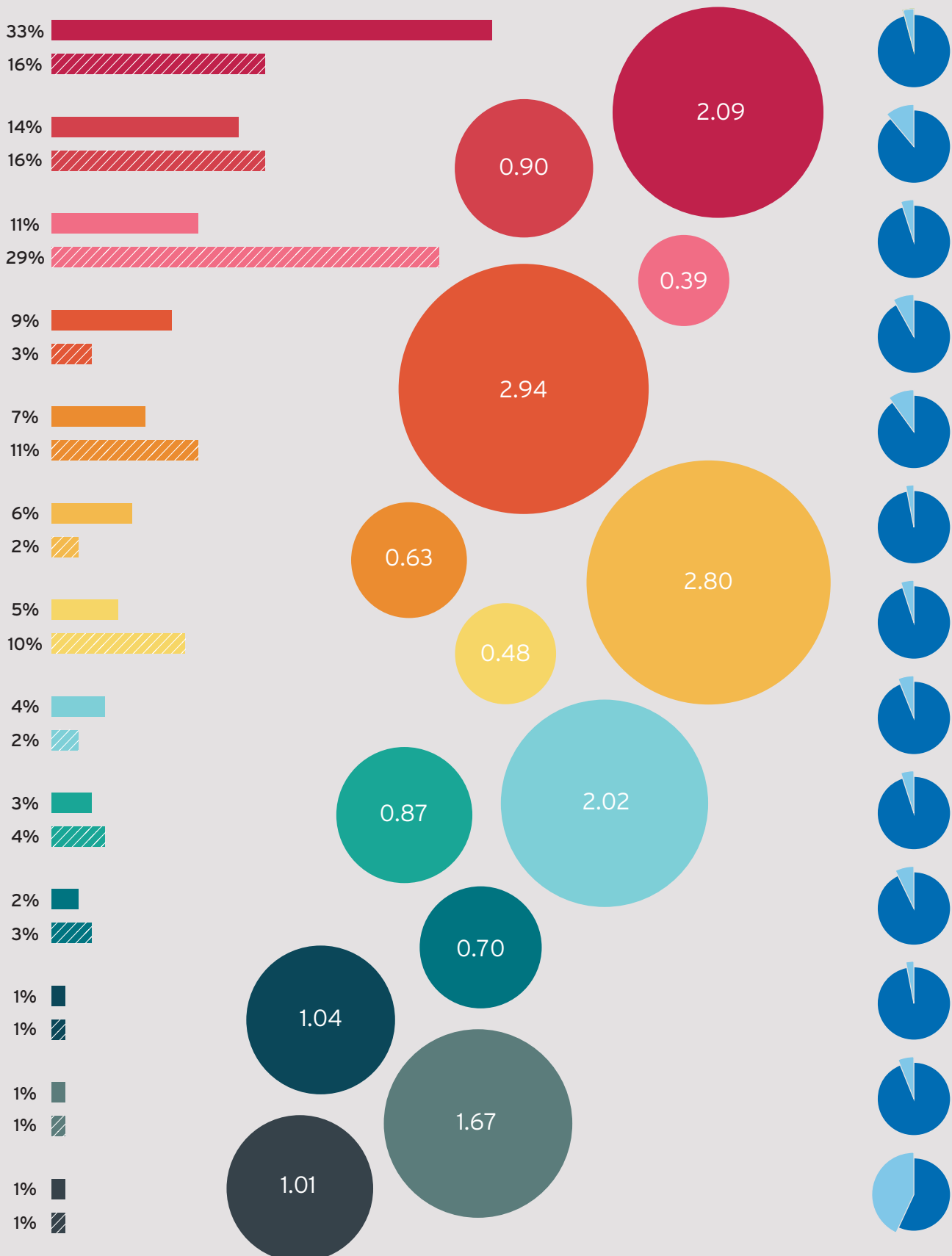


Passenger ship

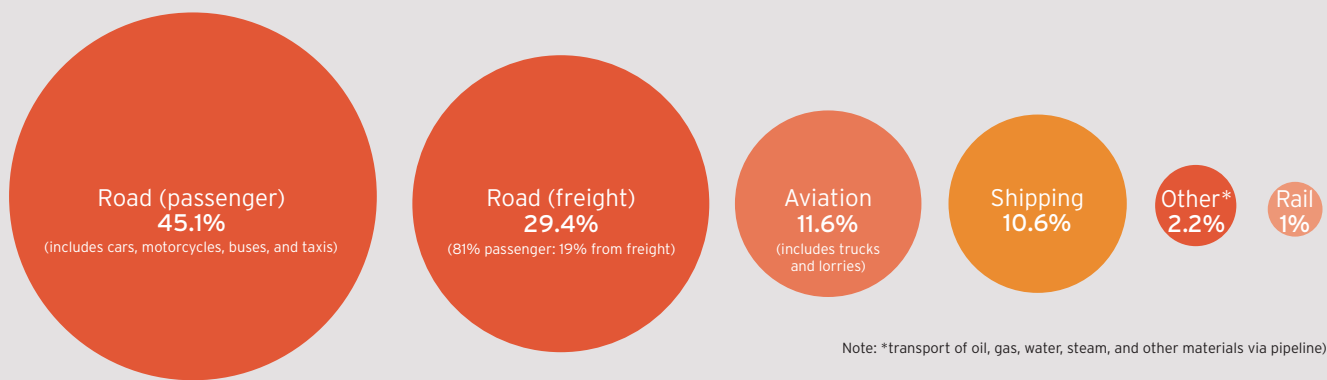
■ Share of emissions at sea and in port by ship type
 ▨ Share of fleet by number of vessels

Ratio of emissions
 share vs fleet share

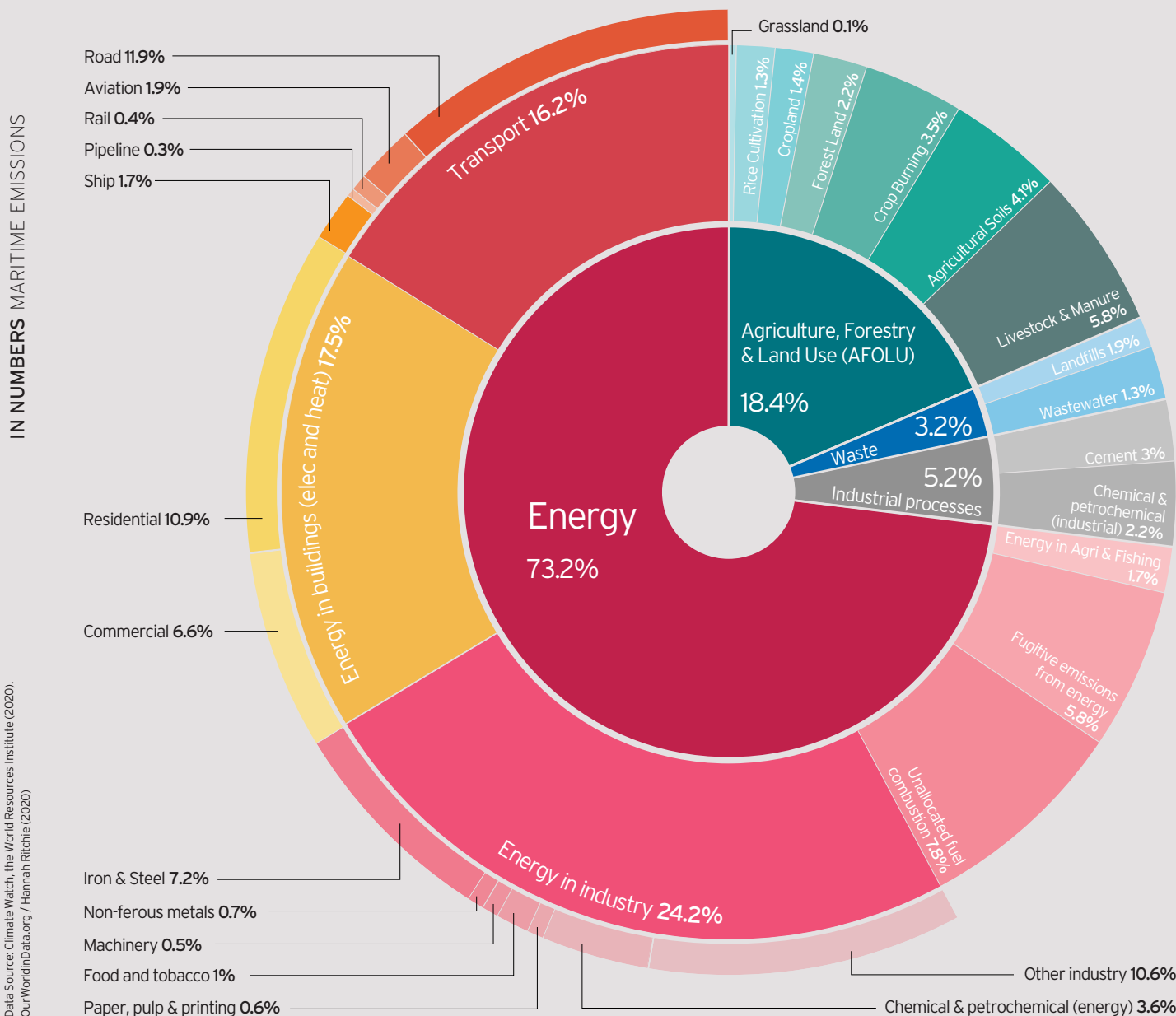
Percentage of CO₂
 emissions at **sea**
 and in **port**



Global 2018 CO₂ emissions from transport (Total: 8 billion metric tons)



Global 2016 CO₂ emissions by sector (Total: 49.4 billion metric tons)





PETER TIRSCHWELL
Vice president, IHS Markit
Maritime and Trade

THE COLUMN

A unique momentum

For the longest time almost anyone in the maritime industry including ports could agree on one thing: the industry is not understood, under appreciated, and has too low a profile.

What a difference a pandemic makes.

Rarely does a day go by when supply chain challenges, tied to the 90% of world trade that moves by sea, are not headline news in the world's major print and broadcast media and saturating social media.

If there was a moment when the world woke up to the fragility of supply chains, it was the six-day grounding of the *Ever Given* in the Suez Canal in late March. The sudden eruption of interest worldwide was disorienting for many in the maritime industry used to toiling in obscurity.

But alongside the record 73 container ships anchored or drifting off the ports of Los Angeles and Long Beach on 19 September and numerous other instances of disruption around the world in 2021, a much bigger picture is taking shape: supply chains once taken for granted are now understood as fragile, risky, and indispensable. For ports, that is hugely significant.

For seaports that have long sought, often with limited success, to bridge the divide between the value they create and the support they receive, now is a moment like none other. And it might be a while before another one like this comes around.

How long will it last, when everyone from the person on the street to the policy maker in government appreciates the importance of supply chains, is not known. The current hyperfocus on supply chains is likely very temporary. As soon as port bottlenecks are

resolved and freight rates return to earth, headlines will begin to fade.

But such is the enormity of the shock from the pandemic that the opportunity for ports as key notes in the supply chain will not fade nearly as quickly. Going back to World War II, the disruption knows no parallel and it is not over yet. If there is one big global theme to emerge from the pandemic, it is supply chain.

That is why for ports seeking to upgrade infrastructure to either physical or digital and needing to build a strong case to do so, that opportunity is real.

The corridors for supply chains that ports create are underinvested in, especially digital.

The extent of the gap and the opportunity was made clear in 2020 when an IMO survey revealed that only 49 of

the 174 member states of the UN maritime organization possess functioning port community systems, prompting a diverse group of organizations to identify a "very urgent need for ports to digitalize processes and data exchanges."

This is a unique moment, but it will not last as long as hoped. ■

"Supply chains are now understood as fragile, risky, and indispensable"

ABOUT THE AUTHOR

PETER TIRSCHWELL is a vice president within the Maritime and Trade division of IHS Markit, publisher of The Journal of Commerce, JOC.com, PIERS maritime trade data, and JOC events such as TPM. In his expanded role, he is responsible for all editorial content appearing in Maritime and Trade media and events.



PROJECT FOCUS INLAND PORTS

Establishing connections

Enabling more diversified cargoes, boosting capabilities, and enhancing economic and environmental sustainability are all driving projects under way or planned by ports and other stakeholders throughout the Great Lakes

SCOTT BERMAN

About 100 US and Canadian ports in the Great Lakes region focus on handling around 160 million metric tons of cargo annually. However, there is another focus right now: Great Lakes stakeholders, along with their counterparts nationwide, are unfolding federal legislation on various fronts. There is President Joe Biden's infrastructure plan, which proposes \$16 billion in port infrastructure works, the precise details of which are yet unknown as the plan winds its way through the US Congress.

There is also the implementation of the Water Resources Development Act (WRDA), a long-standing public law periodically updated, including in 2020.

Pictured: The entrance to Duluth Port, Lake Superior, US.

Photo: Getty Images/Jacob Boomsma





■ City ■ Port — International boundary

Source: IHS Markit

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WRDA 2020 clears budgetary bottlenecks by providing treatment for amounts to be spent on navigation system maintenance activities, including those in the Great Lakes.

It stipulates that Great Lakes projects receive 13% of those expenditures – up from 9.8% previously spent. These numbers are drawn from the Harbor Maintenance Trust Fund, which now has a \$10 billion surplus, consisting of fees paid by owners of ship cargoes, who provide about \$1.7 billion a year. Additionally, WRDA 2020 adjusts cost-share formulas to spur more projects and will enable the surplus and incoming monies to be incrementally spent down in coming years to address navigation project backlogs.

The backlog in the Great Lakes alone, for US Army Corps of Engineers dredging, locks and dams, and other projects, totals \$920 million, according to the American Great Lakes Ports Association (AGLPA).

Steve Fisher, executive director of AGLPA, is encouraged yet cautiously optimistic. The WRDA legislation "really set us up in the Great Lakes region for a healthy flow of funds for harbors going forward," he said. Fisher pointed out that challenges remain: progress needs to continue in terms of plans for disposal of dredged materials – beneficial use is addressed in the WRDA – and it remains to be seen how actual budgeting will shake out in years ahead.

On a related front, AGLPA continues to support and advocate for an expansion of the Port Infrastructure Development Program (PIDP). Since 2019, this program has provided

\$76 million for several Great Lakes ports projects. The projects are showing signs of some of the Great Lakes port strategies going forward.

Milwaukee

At Port Milwaukee on Lake Michigan, for example, a project that has been called the key to growth at the port will create a \$35 million agricultural product facility for export. The initiative, funded by a \$15.89 million PIDP grant, state and city grants, and investment by the new tenant DeLong Company, is being designed to export 200,000 metric tons annually of product, primarily livestock nutrient supplement, and is worth \$40 million,

Adam Tindall-Schlicht, port director said construction is under way at the facility's 1.8 ha site, with the current work including demolition of old structures. He added that the next steps will include, "foundation work, a product receiving building, a product storage building, conveyance system, and a vessel loader." New construction is expected to start late in 2021 and continue into 2022.

In another development, tenant Michels Corporation, an infrastructure contractor, is expanding its site on port parcels, which it has used to stage projects in the region, to launch a maritime division. Construction may include loading and offloading facilities, and an office building, according to local news outlet *Milwaukee Business Journal*.

Port officials are eyeing what is next in a larger sense. Tindall-Schlicht commented that the port's long-term strategic investment plan is now "in its final stages and will be completed by late summer or early fall 2021."

Among other things, the plan is designed to support commercial activity for the next 50 years, with such activity accounting for key factors such as coastal resiliency, and climate change.

Cleveland

This is also what the Port of Cleveland is working on further east, on Lake Erie. It started construction of a \$20 million project in August 2021, funded by an \$11 million PIDP grant and state funds that will modernize two international cargo docks, 24 and 26 West, boosting its project and breakbulk capacities. The port's board of directors approved the initiative in July 2021, said Jade Davis, the port's vice president for External Affairs.

The multipronged initiative will rebuild the docks, including raising Dock 24 to keep it "in service for the next 50 years," improve a rail spur, and build a stormwater treatment system, according to the port authority.

The port is busy with several other projects, including fiber optic and main gate improvements, and a recently completed \$10.4 million extension of the Cleveland Bulk Terminal iron ore tunnel. The project extended the tunnel by 134 m, an optimal length to transport taconite. This design allows the port to efficiently handle an additional 907,000 metric tons of such cargo annually.

Finally, the Icebreaker Wind project is the first proposed offshore wind facility on the Great Lakes. The \$126 million wind farm on Lake Erie – that has been on hold for more than a decade – will generate about 21 megawatts of power from its site about 13 km north of Cleveland.

This project has garnered considerable support as well as opposition. In 2020, a state energy board ruled against costly restrictions on when the energy farm's six turbines could operate, with a subsequent challenge on the matter now in state Supreme Court. Davis said port officials are now awaiting the legal ruling.

Duluth-Superior

In a sustainability push, the wind power industry is advancing in the Great Lakes. Armed with a \$10.5 million PIDP grant, the Duluth Seaway Port Authority (DSPA) is preparing for a \$20.3 million project, with state and port authority funds making up the difference.

This project will create more capacity for wind energy and other heavy-lift cargo by creating an additional warehouse and replacing crumbling dock walls at the Clure Terminal located at the Port of Duluth-Superior on Lake Superior.

Construction is slated to start in April 2022, and will add 5,200 m² of warehouse space to the current 40,000 m² while enabling 28,000m² of laydown space at the terminal.

The imminent work is just a step in a variously funded project agenda that has invested about \$26 million at the port in the past three years, explained Jayson Hron, the port authority's director of communication. Other projects include a \$930,000 rail upgrade to the port's Clure Public Marine Terminal, set for 2022.

In late 2020, the port authority bought a \$950,000 nearby parcel that includes 914 m of on-dock rail. According to a local report, the site may be used for large cargo storage, but as Hron pointed out, "Our future use of this property is still in the planning phases, but our goal is to revitalize the pier and bring it back to life in a way that contributes to our regional economy and further expands Duluth Cargo Connect – the heavy lift, project and breakbulk cargo service of the port authority, and a warehouse operator – to customers within our region and around the globe. Rehabilitation of the pier's dock walls is a priority to secure the site and open possibilities for future freight-related use. That process will begin in 2022."

Toledo

Also looking further afield to attract international vessels, a \$20 million dockwall reconstruction project is gearing up at the Port of Toledo, on Ohio's Lake Erie coast. Funded with a \$16 million PIDP grant and a \$4 million state match, the initiative will replace a deteriorating dockwall at the port's general cargo dock and enable a liquid transloading facility.

At the time of writing, Joe Cappel, vice president of Business Development for the Toledo-Lucas County Port Authority (TLCPA), reported, "The port authority and the US Maritime Administration are in the process of finalizing the grant agreements."

The port, with state funding, has bought a Liebherr 500 mobile harbor crane, which is handling general cargo at Toledo's Midwest Terminals, Cappel added.

All things considered, it is a significant range of Great Lakes port projects, with ports, local states, and federal governments preparing for and carrying out initiatives to stay ahead of the curve in terms of markets, economics, and legislative priorities. ■

Inland investment in the US

Philadelphia Port

\$49 million

The Philadelphia Regional Port Authority will be awarded \$49 million to construct a new approximately 320 m multi-use berth that will accommodate roll-on/roll-off (ro/ro) vessels.

This project will enable the Packer Avenue Marine Terminal to handle additional containerships and would allow Pier 122 to handle bulk cargo. In addition, the new Southport berth will shorten the distance for vehicles to be transported for both processing and storage and will eliminate the need to move ro/ro units on public streets.

Northeast Georgia Inland Port

\$47 million

The Georgia Ports Authority will be awarded \$47 million to build a new inland container port in an unincorporated area of Gainesville, which will be linked with the Port of Savannah by a direct, 520-km intermodal freight rail service. The project would divert truck traffic to intermodal rail transportation to and from the port. The new facility would have a 42,000m² site at the Gateway Industrial Center north of Gainesville.

Port of New York and New Jersey

\$44 million

The Port Authority of New York and New Jersey are slated to modernize an approximately 4.5-km-section of roadway at the north entrance of Port Newark-Elizabeth Marine Terminal.

The project will reduce vehicle travel time, maintenance costs, and improve safety. The port will utilize intelligent transportation systems and integrate equipment with existing on-site fiber optics.

Port of Salem

\$9 million

The South Jersey Port Corporation will be awarded \$9 million to rehabilitate an approximately 45-m bulkhead and extend it to approximately 150 m. Work consists of dredging the new berth; acquire an adjacent approximate 24,000 m² former glass manufacturing facility; and perform site preparation, improvements, and refurbish a multimodal rail connection.

Dubuque Port, Iowa

\$5 million

The City of Dubuque will be awarded \$5 million to increase capacity and improve the Gavilon marine port and rail facility at Dove Harbor terminal at the Port of Dubuque. The project has four elements: renovate an existing fertilizer storage shed that is near the end of its lifespan to increase its storage capacity by approximately 12,000 metric tons; replace and upgrade approximately 2 km of inoperable rail track; relocate approximately 800 m of rail track to support direct transfer/transloading of fertilizer and other bulk products from river barge to rail; and install new rail equipment, including a main line switch, loadout system and shed, and rail-to-barge direct transfer system. ■





Taking the high road

Following the protests of environmental activists group Insulate Britain – who demanded to end fuel poverty – the police arrested and detained protesters who blockaded the entrance to the Port of Dover at the end of September.

Over 40 activists from Insulate Britain blocked the road, with some gluing themselves to the carriageway of the major road at the Eastern docks roundabout close to the port entrance. The protest at the Port of Dover was only one of many that Insulate Britain has instigated over the past months.

Demanding the UK government to fund insulation for social housing, the group said on its website that in the United Kingdom, “29 million homes are the oldest and least energy-efficient housing stock in Europe. Every year vast amounts of precious energy are wasted in heating and, increasingly, cooling our buildings.”

It is therefore argued that to meet UK commitments under the Paris Agreement to stay below 1.5°C and legal obligations under the Climate Change Act 2008, as amended in 2019, emissions from heating and powering homes must be reduced by 78% in less than 15 years and then to zero by 2050. Claiming that “nearly 15% of the UK’s total emissions comes from heating homes, an overhaul of the energy performance of the UK’s housing stock is needed to reduce the energy demand.”

Following the protest, Insulate Britain was hit with injunctions by road authority National Highways to try and keep them off certain motorways, including the M20 that leads to the Port of Dover.

However, with meetings to hear these injunctions being adjourned, a spokesperson for the group said it seemed the government was trying to avoid prosecutions until after the COP26 climate talks in Glasgow in November. Asked why by *The Guardian*, she said, “We know that our government and institutions purport that we live in a democracy, so they don’t want to have 50-100 climate protesters on remand when COP26 starts.” The group and Extinction Rebellion are expected to block roads around the area during the conference. ■

Pictured: Protesters from Insulate Britain block the A20 in Kent. Picture date: Friday, 24 September 2021.

Photo: PA Images / Alamy Stock Photo



PERSPECTIVE IMO PORT INTERFACE GUIDE

Practical guidance for ports

As the connection between ships and shore, ports form an integral part of the supply chain and have the power to shape the reduction of GHG emissions from ships. Decisions on the provision of onshore power supply (OPS), bunkering of alternative zero and low-carbon fuel, and more will have a major impact on emissions both now and in the future.

IMO is committed to assisting all member states such that no country is left behind in the transition to a decarbonized future. Knowledge sharing is an important aspect to leveling the playing field.

Free practical guidance

Earlier this year, the Global Industry Alliance to Support Low Carbon Shipping (Low Carbon GIA), a public-private partnership established under the IMO-Norway GreenVoyage2050 Project, released its free-access Ship-Port Interface Guide. The guide outlines eight practical measures to support GHG emissions reduction at the ship-port

interface (see boxout). Unlike other solutions that may be longer term and require deep capital investment, the guide focuses on measures that can be implemented with relatively limited capital.

Therefore, the guide may have application not in just large ports, but also in smaller ports in developing countries.

The measures mainly focus on optimizing existing operations, thereby reducing the time a ship spends in port, and in some cases, the need to transit to another location to complete other operations.

Individual approaches

Since the release of the guide, further consultations have been taking place with various ports to delve deeper into the successes and challenges to implement these measures. Recognizing that every port is different, and that a one-size-fits-all approach is unsuitable for the global ports sector, these dialogues have been very useful in highlighting different experiences and circumstances

faced by different ports, and how specific challenges might potentially be addressed.

The outcomes of these dialogues are expected to feed into further work being undertaken by the Low Carbon GIA to support implementation of these measures and ensure that any future guidance developed is as practical as possible, and addresses the various challenges faced by different ports.

IMO-Norway GreenVoyage2050 project

The guide is the work of the Ship-Port Interface Workstream of the Low Carbon GIA. The Low Carbon GIA brings together key maritime industry stakeholders with the aim to collectively identify and develop innovative solutions to address common barriers to the uptake and implementation of energy efficiency technologies, operational best practices, and alternative low- and zero-carbon fuels.

The IMO-Norway GreenVoyage2050 project is a technical cooperation initiative to support shipping's transition toward a



ABOUT THE AUTHOR

MINGLEE HOE is a technical analyst for the IMO GreenVoyage2050 project, supporting developing countries in their efforts to reduce greenhouse gas (GHG) emissions from ships. She assisted the IMO Global Maritime Energy Efficiency Partnerships (GloMEEP) project, which also developed low-carbon strategies for the maritime industry.



Pictured: Wind turbines power electricity generators in Antwerp port in Belgium at sunset.

low-carbon future. The project is a cooperation with developing countries on the reduction of GHG emissions from shipping by supporting effective implementation of the Initial IMO Strategy and Resolution MEPC.323(74), which also encourages voluntary cooperation between the port and shipping sectors.

IAPH is a strategic partner to the GreenVoyage2050 project. The IAPH and GreenVoyage2050 are working together on the development of two new workshop packages on sustainable ports and OPS.

It is envisaged that these workshop packages will provide some guidance on measures to reduce GHG emissions from ships in ports, and support decision-makers in assessing cost-effectiveness of OPS. Once finalized, the workshop packages will be publicly available, free of charge, on the project website. ■

Interested ports, particularly those in developing countries, are invited to share their experience on the implementation of these measures with the Low Carbon GIA and should contact the GIA secretariat via:

@ greenvoyage2050@imo.org

🌐 greenvoyage2050.imo.org

The eight measures

The eight practical measures presented in the Global Industry Alliance to Support Low Carbon Shipping Ship-Port Interface Guide suggest that port authorities:

- 1. Facilitate immobilization in ports**
This will allow maintenance and main engine repairs to take place at berth and during cargo operations.
- 2. Facilitate hull and propeller cleaning in ports**
With this taking place at the same time as cargo operations, vessels will experience a reduced port stay and improved energy efficiency – via a reduction in hull and propeller friction.
- 3. Facilitate simultaneous operations in ports**
Allows for operations to happen in parallel, rather than in sequence.
- 4. Optimize port stay by pre-clearance**
This will reduce unnecessary waiting times on arrival at port.
- 5. Improve planning of ships calling at multiple berths in one port**
Optimization for cargo operations can be achieved through just-in-time shifting of ships between berths.
- 6. Improve ship/berth compatibility through improved port master data**
This ensures that the right ship and berth size are utilized.
- 7. Enable ship deadweight optimization through improved port master data**
Better optimization of deadweight capacity will be achieved by this.
- 8. Optimize speed between ports**
This can be achieved through implementation of just-in-time arrival.



ABOUT THE AUTHOR

MICHAEL ACHAGWE LUGUJE is the general director of the Ghana Ports and Harbours Authority. He first started to work with the Port of Tema in 1997 as a French teacher, before moving on to management positions within the authority.

8:00



8:30



10:00



10:30



Nine to five

Michael Achagwe Luguje, general director of Ghana Ports and Harbours Authority, takes *P&H* through a day filled with discussions on advancing Ghana's ports



My day started with a commute to the office in Tema. I drive to work using a company car.



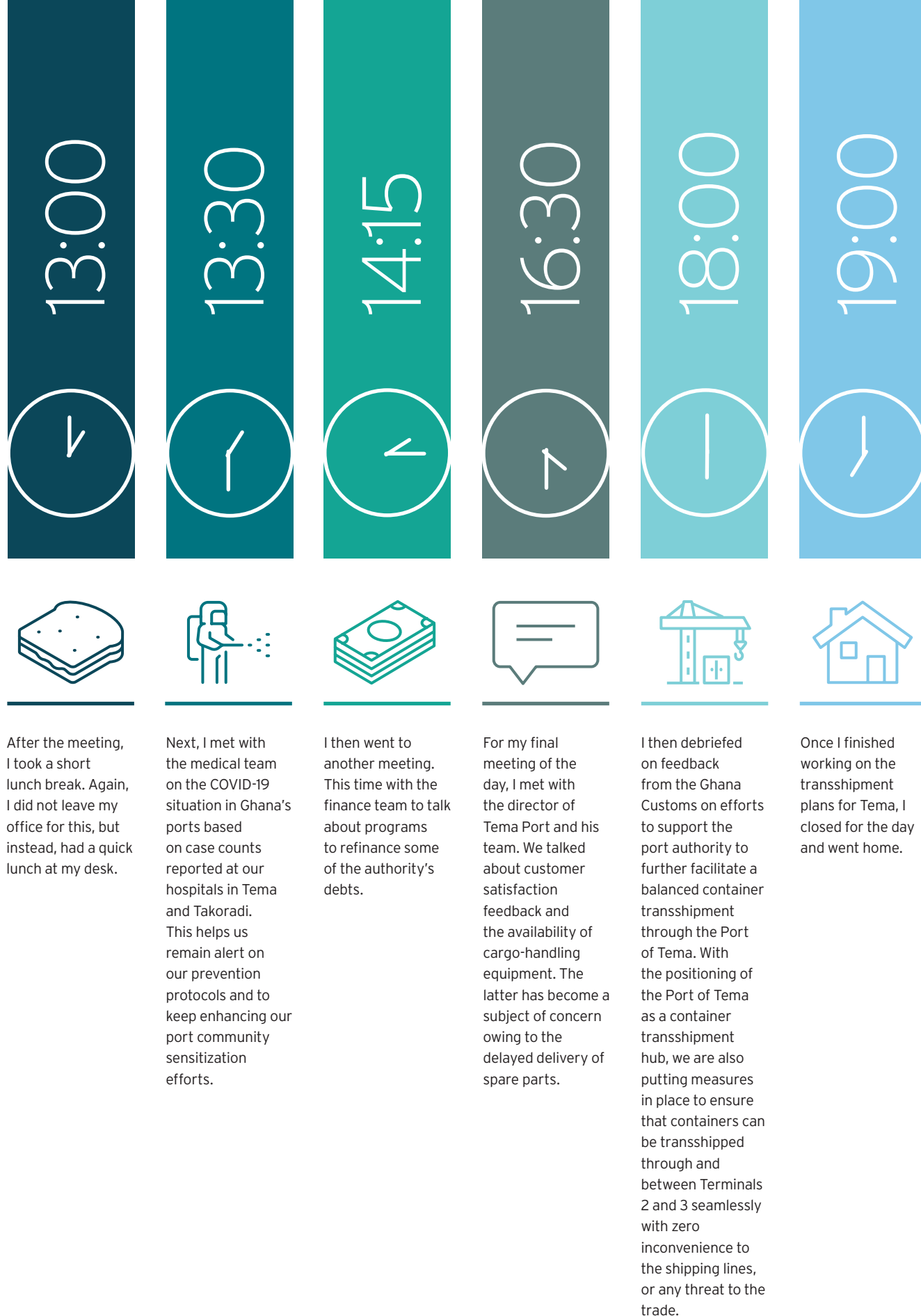
Having arrived at the office, my first action of the day was to review the program for the Strategic Management Review Summit. Happy with it, I then approved it.



Following this, I took a short break. I did not venture out but walked around the office to stretch.



For my first meeting of the day, I debriefed with the chairman of the committee to oversee the implementation of a newly introduced three-shift work system in Ghana's ports. This new system is to help us control labor overtime work and its impact on worker fatigue and hospitalization, and overall reduction in productivity.





IN COURT DOCK WORKERS

The European Court of Justice confirmed that Belgian rules on dock work do not constitute a violation of free movement. However, it rejected parts of the recognition procedure.

CASE

Inappropriate rules

EMMA VAN CAENEDEM | Managing associate, Altius law firm

A key element of the Belgian legislation organizing dock work is that work in port areas can only be conducted by recognized dockers. To become recognized, workers must pass medical and psychotechnical tests by attending a three-week preparatory course and passing a final exam. If a recognized docker wants to take a job in other port areas, specific rules and conditions apply. For example, logistics workers must possess a safety certificate.

Therefore, companies carrying out activities in Belgian ports have no freedom in selecting their staff: they must use recognized dockers, even for logistical tasks. This principle has been subject to criticism for several years as it is often perceived as restricting the freedom of establishment, the free movement of workers, and the freedom to provide services as guaranteed under EU law.

Furthermore, the Belgian dock work legislation contains several specific features. The first is an administrative commission, jointly composed of employers' and workers' organizations, which decides about each recognition request and whether the recognized docker must be included in a quota.

The second, is that the administrative committee is not bound by a legal period within which it must make a decision about a recognition request. Following the legal action undertaken by two major players in the Belgian sector, the European Court of Justice (ECJ) was asked to rule on the validity of the Belgian dock work legislation in the light of EU law. The Council of State and the Constitutional Court sent requests for preliminary rulings to the ECJ, the former regarding the 2004

royal decree and the latter regarding the 1972 Act, which both concern dockers.

What is appropriate

The ECJ held that requiring only recognized dockers execute dock work does not constitute a violation of the freedom of establishment and the freedom to provide services, provided that the aim is to ensure safety in port areas and to avoid workplace accidents.

However, it is disproportionate if this safety training is provided only by one specific institution in the EU member state – in this case, Belgium – and if specific safety skills that workers have acquired abroad are not considered. Lastly, the ECJ held that imposing a quota on the number of recognized dockers is also disproportionate to the aim of ensuring safety in port areas, especially since the question of whether a docker is included in the quota affects the validity of their recognition.

According to the ECJ, the requirement to successfully pass certain tests and training to become a recognized docker is a proportionate and appropriate way of ensuring safety at port areas, provided that such tests and training are conducted with full transparency, objectivity, and impartiality.

Recognition procedure is inappropriate

However, the ECJ held that there is no certainty that the members of the administrative commission, which is responsible for the recognition, have themselves the required knowledge to verify whether a docker can carry out dock work safely.

There is no guarantee that the members of the administrative commission decide in an

objective, transparent, and nondiscriminatory manner. There is a risk that the employers' organizations would refuse the recognitions of dockers active with competitors and a risk that workers' organizations would refuse the recognition of foreign dockers to preserve local employment.

The ECJ decided that it was inappropriate and unnecessary that the administrative commission does not need to make a decision on recognizing a docker within a reasonable timeframe. The ECJ ruled that the arrangements needed to post workers to different ports restricts dockers' freedom to take jobs in several port areas and the freedom of a company that relies on the services of dockers who have obtained their recognition in a different port area.

Inevitable legislative changes

The Council of State and the Constitutional Court will have to make a final ruling on the Belgian dock work legislation, taking into account the ECJ's considerations.

Additionally, the case pending before the Constitutional Court was also because of a preliminary ruling request by the Court of Cassation, so the latter court will also have to rule on the matter.

Interesting debates can be expected in the coming months, and probably years, with different stakeholders lobbying the government. Based on the ECJ's ruling, the obligation to rely on recognized dockers will undoubtedly continue to exist. The future recognition procedure will be difficult to predict, especially whether employers' and workers' organizations will still have a role to play. ■

EXPERT

Appropriate reactions

ERIK VAN WELLEN | Partner at Maverick Enterprise; independent expert and alternative dispute resolution professional

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umerous ports have undoubtedly been following the outcome of the Joined Cases C-407/19, Katoen

Natie Bulk Terminals NV and General Services Antwerp NV v Belgische Staat and C-471/19, Middlegate Europe NV v Minister-raad at the European Court of Justice (ECJ) and their aftermath. If not, it is well worth doing some catch-up reading.

In essence the ECJ partially upholds Belgium's dockworker regulation by taking the view that reserving dock work for recognized workers may indeed be compatible with EU law if it is aimed at ensuring safety in port areas and preventing workplace accidents. At the same time, it was of the opinion that the intervention of a joint administrative committee, on which unions and employers sit, in the recognition of dockers is neither necessary nor appropriate for attaining the said objective pursued.

Adjustments required

As the regulation regarding the status of the Belgian dockworkers is enacted in the Belgian legislative system by means of the Major Act 1972, this will now likely require ensuing adjustments in law. Some of the actors involved here may still recall the first relaxation in this context back in 2016.

Although few ports have such a structured recognition system for dock workers as the one in Belgium, most have found that such systems – regardless of how intricate – are in general forces for good that have helped to increase safety, security, and social rest.

The debate therefore will be relevant to numerous ports. Although some might say that at its core it is a mere employment issue between employer and labor, ports given the socio-economic role they fulfill, are and will be a part of the ongoing debate. And ongoing is absolutely the right adjective here.

Shifting sentiments

Given that the ECJ ruling was less unequivocal and prescriptive as most would have liked, one can expect to see some passionate debates and fierce lobby work toward the lawmakers in years to come from both sides of the aisle.

But time is also an ongoing process in which, as some say, times can change, public opinions can shift, sentiments can vary.

The artists Les Johnson, Mari Andriesen, and Constantin Meunier have with their statues already shown in immaculate physical materialization the energetic strength and gritty hardness of the docker in London, Amsterdam, and Antwerp, respectively. They hold an almost mythical universal appeal far outstripping that of any manager.

So, an omni-beneficial application of a social mediation process and its private and confidential nature may likely serve all far better in helping cool heads prevail in finding an optimal achievable solution rather than highly polarizing media-spectacles and complex legislative construction work.

Ports will undoubtedly find themselves center stage in this far-reaching debate. ■

"Ports will undoubtedly find themselves center stage in this far-reaching debate"

Making contact

While interaction between seafarers and the local population in the past – and today – was confined to sailortowns, sometimes UK maritime staff abroad build long-lasting relationships

DR MEL BASSETT AND PROFESSOR BRAD BEAVEN

O

ne of the key research themes of our Port Towns and Urban Cultures group of the University of Portsmouth, UK, is to explore the age-old relationship between sailors who came ashore and how they interacted with port-side communities. This gives us insight into, for

example, the growth of a microeconomy that targeted the needs of the transient seafarer. These districts that grew around ports became known as sailortowns and were at their most numerous during the 19th century as ships often docked close to a city's business and residential quarter.

Thus, sailortown was a seaport's urban quarter where sailors would stay, eat, drink, and be entertained. It was a transient and liminal space and a unique site of cultural contact and exchange. However, it sat at the crossroads between the urban and maritime realm, and — because of this — it had traditionally fallen between maritime and urban history.

Historians have become blinkered into examining either the land or sea and, consequently, the waterfront is often neglected. However, the history of the port can often slay persistent myths about the nature of British society in general. For example, the popular assumption that Britain became a multicultural country only after the Windrush brought over Caribbean migrants in the 1950s is wide off the mark once we explore the people in sailortown.

London in the 19th century provides the ideal case study to explore ethnicity in ports and the sailors' relationship with the working-class communities that resided there. London was home to the largest port in the world and accommodated sailors from around the globe in a condensed street full of boarding houses and entertainment venues close to the London docks.

Pictured: Antique photograph of British Navy and Army in Kowloon, Hong Kong.
Photo: Getty Images/ilbusca







This strip of land was the infamous Ratcliffe Highway, which was portrayed by the press as a sailors' bacchanalia and a den of drunkenness and vice. However, when we examined census, police, and court records, we found that Ratcliffe Highway was a relatively orderly place with few serious crimes during the 19th century. A sailortown was essentially an international contact zone where ethnic traditions became embedded in the district itself through former sailors staying ashore and running eating places, public houses, and boarding houses.

Our research on ethnicity and sailortown is also helping to shape how we see foreign sailors and their contact with Britain since the 1600s.

We recently advised the Wellington Trust and worked with local community groups on their new South Asian Seafarers exhibition that explores their personal stories and their contribution to British shipping over 400 years.

Alongside our work on exhibitions, we also work with maritime businesses in showcasing their history and archive. For example, we are working with Lloyd's Register Foundation to uncover their history in mainland China's treaty ports.

Lloyd's Register in mainland China

In 2019, Lloyd's Register (LR) celebrated 150 years of operation in mainland China. However, little is known about the history of the organization in mainland China, and still little is known about the influence and impact the class society and its surveyors had on international

"Little is known about the influence the class society and its surveyors had on international understandings of health, safety, and risk management"

understandings of health, safety, risk management, and their broader influences on local infrastructures and imperial cultural knowledge. Indeed, Robert Bickers argued in his most recent publication, *China Bound*, that "the relationship between colonial Hong Kong, the treaty ports, and the wider landscape of British power in Asia is more integrated and fluid than might be assumed". The First and Second Opium Wars (1839–42 and 1856–60), forced the mainland Chinese government to accept a

series of treaties allowing trade in 16 ports by the end of 1858. Hong Kong was also annexed as a Crown Colony in 1842.

By the early 20th century, a total of 92 Chinese treaty ports were open to western trade. LR's offices were situated in the center of this system in mainland China from 1869. During the period of 1869–1920, LR listed offices in Shanghai, Hong Kong, Amoy (Xiamen), Foochow (Fuzhou), Hangchow (Zhejiang), Tientsin (Tianjin), Dairen (Dalian), and Hancow (Wuhan).

Today, Lloyd's Register Foundation Heritage and Education Center holds a vast historical archive relating to the business, including correspondence with

its surveyors, which has not previously been explored by researchers. Central to our project's output is therefore a three-year PhD of original research to be undertaken at the University of Portsmouth. It will focus on the social and global history of LR during the period. The company sent its surveyors around the globe to record and check standards of international shipping, which consequently influenced the development of territories and port towns.



Pictured: Antique photograph of World's famous sites:
Victoria, Hong Kong.

Photo: Getty Images/iibusca

Introducing Newman Mumford

One such example is Newman Mumford (1861–1942). Mumford enjoyed a long career as an LR surveyor. Born in the Isles of Scilly, Mumford trained at the Wallsend Slipway and Engineering Company, in Wallsend on Tyne, UK. His career at LR took him to work in Singapore, Hong Kong, Greece, and Turkey, and during the First World War, he was stationed in Egypt. His last appointment for LR was in Switzerland. In his retirement, he moved to Vancouver, Canada, where he lived until his death.

Mumford played an active role in port city life and was reported to have had a worldwide circle of international friends. A search of the digitized copies of the United Grand Lodge of England Freemason Membership Registers, available to search on ancestry.co.uk, shows that Mumford became a member of Zetland Lodge in 1896.

Similarly, Hong Kong's daily newspaper, the Overland China Mail, features reports of his activities in various clubs and societies such as the Hong Kong Odd Volumes Society — a gentleman literary, scientific, and debating society — and the Institute of Engineers and Shipbuilders of Hong Kong.

In 1906, Mumford had risen to become president of the Institute of Engineers and Shipbuilders of Hong Kong and had instigated a series of prizes to be awarded to members competing in billiard contests.

Indeed, Mumford was featured in the letters section of the Overland China Mail in 1903 advocating for the construction of a steel works in Hong Kong to cut down the

About the project

The Port Towns and Urban Cultures group at the University of Portsmouth is dedicated to furthering our understanding of the social and cultural contexts of ports across the globe from the early modern period to the present day.

It recognizes that ports are important international contact zones where marine and urban spaces converge, producing a unique site of social and cultural exchange.

Established in 2010, the research group has published a range of key academic texts, staged conferences, and established the academic journal *Coastal Studies and Society* (SAGE) and a book series titled *Global Studies in Social and Cultural Maritime History* (Palgrave). The group also collaborates with other universities in the UK and overseas and with nonhigher educational institutions such as museums, community groups, and businesses in the port and maritime sectors.

costs of purchasing European manufactured steel.

He was well-regarded and popular within the international community in Hong Kong and upon news of his planned departure from the colony it was remarked, "His friends will be pleased because he is getting on to the continent and progressing, and they will be sorry because they will lose a sincere friend and energetic helper in any good cause that demands assistance," the Overland China Mail, wrote on 13 December 1904.

A subscription to the colony's Coronation Celebration Fund in June 1902 can attest that while in Hong Kong, he was active in espousing British cultural values. We can also start to extrapolate conclusions of the prevailing cultural ideas and sentiments of the times by looking at the titles of various lectures held by the Odd Volumes Society in its annual report of 1902-3 such as *The Chinaman*; *The Anglo-Saxon and the Orient*; *The Reasonableness of Christianity*; *The Defense of the Empire*; *Buddhism*; *Marriage*; and *Chinese Manners*. ■

Much more research is to be undertaken by our new PhD student who will take on this project and make it their own. However, if anyone out there has leads or archives that would be of interest, please contact Dr Bassett via @ptuc@port.ac.uk

Readers can embark on a journey through Portsmouth's sailortown using this interactive map:

● sailortown.co.uk

For more on the research, search for Port Towns and Urban Cultures on Twitter or Facebook. Or visit:

● porttowns.port.ac.uk

Membership notes

Welcome to new members:

Associate members

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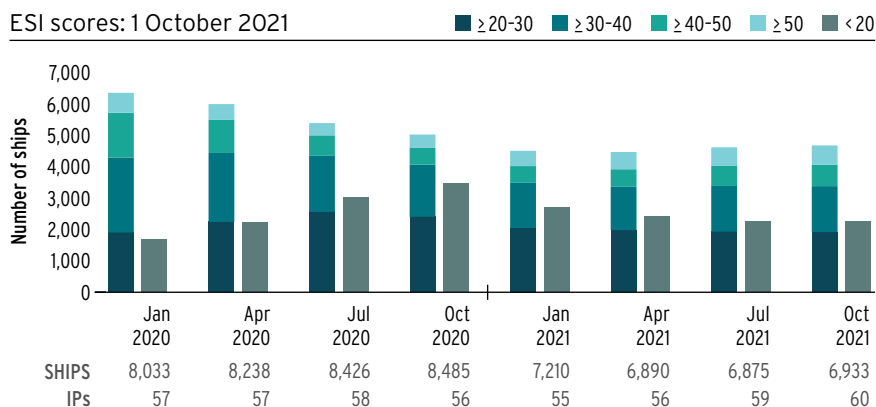
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- Iwan van der Wolf, CEO

ESI scores: 1 October 2021



Note: Stacked bars show ESI scores above 20 points, single bar shows ESI score below 20 points

Source: IAPH | © 2021 IHS Markit

Updated ESI registrations published

As of October 2021, a total of 6,933 vessels have been registered with the Environmental Ship Index (ESI). Compared to the last update from July this year, 58 vessels have been added to the index. ■

If your port is not yet a part of the ESI, find out more about the program on the ESI website or contact the team:

- www.environmentalshipindex.org
- admin@environmentalshipindex.org

IAPH logo and website to be relaunched

The IAPH will start the new year with a newly launched logo, branding, and website.

The logo has been designed by Pavlov Branding, the agency that also designed the World Port Sustainability Program, World Ports Conference, and P&H logos.

This step therefore aligns the IAPH logo with all IAPH brands in one design family.

The new IAPH website, which is currently under construction and will be launched at the beginning of December, will have ample representation of the new branding.

You can find the latest updates on the relaunch in the IAPH Insider. ■



To sign up to IAPH Insider, the association's bi-weekly online newsletter, send your and your company name, country, email address, and that you heard in P&H about the newsletter to:

- newsletter@iaphworldports.org

EVENTS TIMELINE 2021-22

8

NOVEMBER (8-12)

IMO Marine Environment PC
Discussions about environmental matters
imo.org

16

NOVEMBER (16-17)

Smart Ports conference Barcelona
Focus on the digital agenda of global ports
smartports.tv

17

NOVEMBER

US Transport Research Board webinar
Virtual meeting focusing on alternative fuels
transportation.gov



Jay Daniel Santiago speaks about his new role as IAPH vice president for the Southeast Asia and Oceania region and what regional challenges he hopes to tackle

Q: Can you introduce yourself and your priorities at the Philippine Ports Authority (PPA)?

A: I was appointed by President Rodrigo Duterte as the general manager for PPA in June 2016. Prior to that, I was the vice president and chief legal counsel of the Philippine Amusement and Gaming Corporation, the Philippines' casino and gaming regulator. Before my stint with the government, I practiced law, specializing in corporate and commercial laws.

During the past 18 months, we in PPA have been mobilizing our resources to deal with the disruption in logistics and the supply chain caused by the COVID-19 pandemic. Our efforts prioritized the need to protect our employees and, at the same time, serve port users the best we can. We have expedited the implementation of all ongoing and programmed port and infrastructure projects and will continue to deliver our commitment to complete those ongoing before 30 June 2022. This is not only in consonance with the Build, Build, Build Program of the Duterte administration but also of my personal aspiration to modernize and upgrade PPA ports.

Q: What are your focus areas and goals as the vice president for the Southeast Asia and Oceania region?

A: Consistent with IAPH's mission, I will be espousing collaboration and information-sharing to help resolve common issues, advance sustainable practices, and continually improve how ports serve the maritime industries. Helping to promote and accelerate digitalization and greenhouse gas emissions reduction in ports in our region will be my focus areas.

Q: You have been at the helm of the PPA since 2016. What accomplishments are you most proud of?

A: In less than five years, PPA completed a total of 215 port projects across the country and around 115 more are slated for completion before June 2022. This feat is unprecedented in PPA's history.

During my term, or from 2016 to 2020, PPA remitted \$374 million to the National Treasury as cash dividends. Records would show that the total remittance of PPA for 15 years from 1986 to 2015 is only \$416 million.

Keeping the ports open and operational, and the flow of goods unhampered during this pandemic have been our greatest challenge. They remain to be so and PPA should continue to respond to this challenge by providing the necessary policy framework, manpower requirements, and collaboration with private and government partners.

Despite the constraints posed by the pandemic, PPA was able to bid out and the public responded, through competitive bidding of 11 ports under the Port Terminal Management Regulatory Framework, paving the way for the award of contracts for the management, operation, development, and maintenance of these ports by the private sector. For the next 15 years, these ports are assured of modern, robust, and adequate cargo handling equipment and technology systems with key performance indicators and contract obligations properly monitored and reviewed.

Q: Which challenges do the PPA and other ports within the Asian region face?

A: The Philippine ports as well as ports within the Asian region face common challenges today and in the post-crisis scenario. As our ports execute necessary plans for the great recovery and resilience in the days and months ahead, the greatest of these challenges has been echoed by IAPH in its clarion call to action of the Getting to Zero Coalition in September 2021. To be able to meet this challenge, it is incumbent upon all ports to rally behind IAPH and put our collective efforts by signing and submitting the call to action!

Q: How would you like to collaborate with the IAPH to help the Southeast Asia and Oceania region prosper?

A: Developing country ports such as the Philippines and those in the region are exposed to natural disasters and the impact of climate change such as sea level rise.

I believe much more can be gained by sharing our best practices in disaster response and mitigation, and in building back better. We can begin by choosing from the list of projects and measures suggested or outlined by the IAPH committees on Climate and Energy and Risk and Resilience. In attaining incremental successes, our efforts can translate into making our ports truly smart. ■

Q&A

JAY DANIEL SANTIAGO
General manager, Philippine Ports Authority

IAPH INFO

Photo: Philippine Ports Authority

25

NOVEMBER

Maritime SheEO Conference

Conference for female maritime leaders

maritimesheeo.com

6

DECEMBER (6-10)

IMO Assembly

Meeting to approve future work program

imo.org

16

MAY 2022 (16-18)

World Ports Conference Vancouver

The IAPH's flagship conference

worldportsconference.com



BOOK AUTHOR

BILL GATES is a technologist, business leader, and philanthropist. In 1975, he co-founded Microsoft with Paul Allen. He also launched Breakthrough Energy, an effort to commercialize clean energy and other climate-related technologies.

THE REVIEW

How to avoid a climate disaster: The solutions we have and the breakthroughs we need, Bill Gates

INES NASTALI



Having shifted his focus away from the computer empire around Microsoft, Bill Gates started to look at climate change after seeing energy poverty when travelling to Africa with the foundation he and his ex-wife run.

Driven by this, he published *How to avoid a climate disaster* earlier this year, promising nothing short of a plan for what we need to do to reduce emissions to net zero – what an undertaking!

While numerous reviews have been published for this book, I wanted to look at it from the angle of maritime emissions.

Where relevant, Gates lays out the green premiums that truly zero carbon energy and propulsion methods come with compared to the current industry default. These range from 9% for plastics base material ethylene, to 326% for advanced bio bunkering fuels, and reach a peak with 601% for bunker electrofuels, which for example use microorganisms that harvest energy from hydrogen.

According to Gates, maritime transport has thus the biggest premiums to navigate.

Acknowledging that – and take comfort that not only maritime struggles with this – “it has always taken decades upon decades,” to move away from one energy source, he also reminds readers that we already see the impact of climate change on the supply chain.

However, for maritime, Gates does not uncover any truths the industry is not aware of: He does not believe that container ships can run on batteries, simply owing to the weight that would have to be added to store them on board, and, “given how important container ships have become, I don’t think it will ever be financially viable to try to run them on anything other than liquid fuels.”

To bring those premiums down, Gates suggests government policies – a logical step, however, he notices the conundrum of “which country’s jurisdiction would cover carbon emissions from a container ship in the middle of the Atlantic Ocean?”

He therefore gives maritime somewhat of a free pass owing to regulations being unenforceable. I would, however, argue that knowing the engine data of a ship and the time a journey takes, governments monitoring ships passing their waters, are in a position to measure emissions. The crux is, they choose not to.

Given how vast the challenge of climate change is, I give Gates a pass here, too.

He does suggest concrete measures, for example, for the energy sector that will play into bringing maritime emissions down because, as we know, everything is connected.

When to read this book? When you still think planting trees saves the world – not that easy if we keep cutting them down; you want to understand the fundamentals of the crisis we are in or innovate the sector you work in – or simply want to know which Netflix show Gates enjoys and which fruit he likes container ships to bring to him all year round. ■

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