

EDITION 133 - 2023

PORT THE E-JOURNAL OF PORTS AND TERMINALS

# **SUSTAINABLE** DEVELOPMENTS



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## FOREWORD

Welcome to the 133rd edition of PTI's e-journal! As we enter the final month of summer, we bring you a collection of captivating articles that delve into the latest trends and developments in sustainability.

Global trade contributes nearly 3 per cent of all greenhouse gas (GHG) emissions, a well-known fact that we might have grown weary of hearing. However, it is paramount that we take heed to this point and take decisive action towards building more sustainable supply chains. In light of the recent guidelines from the International Maritime Organization (IMO), the need for a roadmap to achieve net-zero emissions becomes even more urgent.

In this highly anticipated edition, we are privileged to present an exclusive interview with the IMO. During this in-depth conversation, the IMO unveils its trailblazing new strategy, which is set to revolutionise the landscape of international shipping in the quest for a sustainable future. The centrepiece of this groundbreaking strategy is the ambitious objective of attaining netzero greenhouse gas (GHG) emissions from international shipping by a crucial milestone year: 2050.

DP World returns to share its successful sustainability endeavours in the first half of the year, discussing electrification and automation projects and the benefits they bring. Their commitment to achieving net-zero emissions by 2050 aligns them with other industry leaders who share a common vision for a greener future. Delving into DP World's efforts, we will explore their successful automation initiatives that contribute to emissions reduction.

Next in the spotlight is APM Terminals, where they lay emphasis on their primary goal of decarbonising operations and tackling the challenges posed by fragmentation within the industry.

In addition, we are excited to feature insights from the German terminal

operator HHLA, who share their innovative energy-saving automatic block storage system. This system represents a significant leap forward in optimising energy consumption and enhancing operational efficiency in their terminals.

We are thrilled to feature Portwise, one of our esteemed industry partners, as they emphasize the crucial role of reducing energy consumption in ports and terminals to mitigate their environmental impact and combat climate change. Their insightful contribution sheds light on the significance of efficiency and optimisation as powerful tools to curb emissions in the maritime industry. Moreover, Portwise advocates for strategic investments in new technologies, such as electrification, to further drive sustainability efforts.

We are honoured to welcome back Wolfgang Lehmacher and Mikael Lind, esteemed experts in the shipping industry. During this discussion, they will underscore the critical role of collaboration and co-creation in navigating challenges such as decarbonisation and digitalisation. Their insights will shed light on notable initiatives that actively involve stakeholders from diverse sectors, with a common goal of finding solutions through partnerships of varying scopes and levels of integration. Emphasizing the importance of collaboration, they will highlight its pivotal role in addressing global systemic challenges and fostering a more inclusive and sustainable world.

Continuing with our journal, we have the privilege of featuring insights from FourKites, a leading supply chain visibility platform. In their expert contribution, they offer valuable and practical tips for streamlining processes to minimise waste in the supply chain. Their recommendations span a wide spectrum, including strategies to enhance dwell times, optimise backhauls, and implement

#### Margherita Bruno, Editor



advanced systems to improve yard and facility operations.

In our interview with cram manufacturer Kuenz, we will delve into their ambitious long-term sustainability objectives and strategies within the crane industry. The spotlight will be on their commitment to offering electric cranes and harnessing new technologies to minimise emissions.

As we draw to a close in this edition, the Port of Dover shares its vision for a sustainable future that not only facilitates trade and tourism but also supports the UK's zero-carbon objectives.

Lastly, we reflect on PTI's past European events, Greentech in February and Smart Digital Ports of the Future in May. Our team had the opportunity to sit down with prominent figures from Mott MacDonald and Envision to discuss their involvement in port master planning, energy management, and green fuel solutions for ports worldwide. These companies provide digital platforms powered by AI and IoT to manage energy consumption and carbon emissions.

BT finally unveils innovative solutions focused on streamlining port operations, bolstering safety measures, and championing sustainability. In this exclusive interview, we will delve into how their user-centric approach, combined with close collaboration with port stakeholders, has resulted in a wide array of network solutions that effectively tackle various challenges within the port industry.

A warm and heartfelt welcome to all our esteemed partners featured in this edition! We are incredibly honoured to collaborate with you and share your valuable insights and initiatives that are propelling us towards a greener and more sustainable future.

Thank you for being part of this journey towards a better future for all, and we look forward to continuing this collaborative effort in shaping a more sustainable and inclusive world!



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## **CHARTING A GREENER COURSE:** THE 2023 IMO STRATEGY FOR NET-ZERO EMISSIONS IN INTERNATIONAL SHIPPING

#### MAIN

International Maritime Organization (IMO) Member States meeting in the Marine Environment Protection Committee (MEPC) in July 2023 welcome the adoption of the 2023 IMO GHG Strategy



**Rakin Rahman**, Staff Reporter, Port Technology International, interviewing **Roel Hoenders**, Head Air Pollution and Energy Efficiency, Marine Environment Division, IMO

#### Could you touch on some of the key aspects of your plan to achieve net-zero by 2050 alongside any limiting factors to this endeavour?

On 7 July 2023, International Maritime Organization (IMO) Member States meeting in the Marine Environment Protection Committee (MEPC) adopted the "2023 IMO Strategy on Reduction of GHG Emissions from Ships" (2023 IMO GHG Strategy), with enhanced targets to tackle harmful emissions.

RIGHT

Global shipping

spews out 3 per cent

of worldwide GHG

The 2023 IMO GHG Strategy represents the continuation of work by IMO as the appropriate international body to address greenhouse gas (GHG) emissions from international shipping.

#### Vision

IMO remains committed to reducing GHG emissions from international shipping and, as a matter of urgency, aims to phase them out as soon as possible while promoting, in the context of this Strategy, a just and equitable transition.

#### Levels of ambition

Levels of ambition directing the 2023 IMO GHG Strategy include:

- carbon intensity of the ship to decline through further improvement of the energy efficiency for new ships to review with the aim of strengthening the energy efficiency design requirements for ships;
- carbon intensity of international shipping to decline to reduce CO2 emissions per transport work, as an average across international shipping, by at



least 40 per cent per cent by 2030, compared to 2008;

- to increase uptake of zero or nearzero GHG emission technologies, fuels and/or energy sources to represent at least 5 per cent, striving for 10 per cent, of the energy used by international shipping by 2030; and
- 4. to peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around, i.e. close to, 2050, taking into account different national circumstances, whilst pursuing efforts towards phasing them out as called for in the Vision consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement.

#### Indicative checkpoints

Indicative checkpoints to reach net-zero GHG emissions from international shipping are:

- to reduce the total annual GHG emissions from international shipping by at least 20 per cent, striving for 30 per cent, by 2030, compared to 2008: and
- 2. to reduce the total annual GHG emissions from international shipping by at least 70 per cent, striving for 80 per cent, by 2040, compared to 2008.

## Basket of candidate mid-term GHG reduction measures

The 2023 GHG Strategy states that a basket of candidate measure(s), delivering on the reduction targets, should be developed and finalised comprised of both:

- a technical element, namely a goal-based marine fuel standard regulating the phased reduction of the marine fuel's GHG intensity; and
- an economic element, on the basis of a maritime GHG emissions pricing mechanism.



The timeline set out in the Strategy envisages an impact assessment of measures proposed. The adoption of mandatory measures is foreseen for 2025.

#### For years, the shipping industry, governments and environmental groups have wrangled on how to make the transport of goods by sea greener. Why do you think it has been so difficult to decarbonise the industry?

The first set of mandatory measures to enhance energy efficiency of ships and therefore reduce emissions were adopted in 2011. They have since been continuously enhanced. IMO has set shipping on a trajectory to be more environmentally-friendly, since it first adopted the MARPOL treaty to prevent pollution from ships in 1973.

There are many ways in which ships can be more fuel efficient, through design, hull cleaning, speed optimisation, on-board technology and so on. Of course, ultimately, full decarbonisation will be achieved through a switch to low or zerocarbon fuels. This means ensuring that sufficient such fuels are available for ships – which consume some 300 million tonnes of fuel oil a year. This also presents great opportunities for developing countries, in particular, to use abundant solar, wind and hydroelectric power to produce clean fuels.

With 90 per cent of the world's goods transported by ships, do you think the economic incentives of ensuring the safe transportation of these goods have historically outweighed the environmental concerns?

IMO has a long track record of regulating international shipping by setting safety and environmental standards addressing all operational pollution of ships. Maritime transports costs and freight rates are subject to constant fluctuations. Regulatory compliance costs are only one of the various cost elements determining economic incentives.

#### ABOVE

International Memorial to Seafarers, IMO Headquarters, London, UK

#### What methods will you employ to actively remove greenhouse gases from the atmosphere?

IMO as an organisation is not involved in directly removing GHG from the atmosphere.

It is worth noting that IMO's treaties, the London Convention and London Protocol, address carbon capture and sequestration in sub-sea geological formations (CCS-SSGF) as a method to reduce pollution from ships. So there is a legal basis in international environmental law to regulate carbon capture and storage in subseabed geological formations for permanent isolation. This practice would typically apply to large point sources of CO2 emissions, including power plants and cement works, but excludes the use of such CO2 waste streams for enhanced oil recovery.

#### **READ MORE**

Further, the London Convention/ Protocol address marine geoengineering, which is defined as "a deliberate intervention in the marine environment to manipulate natural processes, including to counteract anthropogenic climate change and/or its impacts, and that has the potential to result in deleterious effects, especially where those effects may be widespread, long-lasting or severe." The London Protocol provides that all ocean fertilisation activities other than those referred to above shall not be permitted. An ocean fertilisation activity may only be considered for a permit if it is assessed as constituting legitimate scientific research taking into account any specific placement assessment framework.

#### **READ MORE**

## "IMO REMAINS COMMITTED TO REDUCING GHG EMISSIONS FROM INTERNATIONAL SHIPPING AND, AS A MATTER OF URGENCY, AIMS TO PHASE THEM OUT AS SOON AS POSSIBLE."

"IMO HAS AN EXTENSIVE PROGRAMME OF SUPPORT TO COUNTRIES TO IMPLEMENT IMO MEASURES. IN THE STRATEGY, THE COMMITTEE RECOGNISES THAT DEVELOPING COUNTRIES, IN PARTICULAR LEAST DEVELOPED COUNTRIES (LDCS) AND SMALL ISLAND DEVELOPMENT STATES (SIDS), HAVE SPECIAL NEEDS WITH REGARD TO CAPACITY-BUILDING AND TECHNICAL COOPERATION. AN APPENDIX PROVIDES AN OVERVIEW OF RELEVANT IMO INITIATIVES SUPPORTING THE REDUCTION OF GHG EMISSIONS FROM SHIPS."



Could it be that some countries are better equipped to accommodate their shipping ports to your targets than others, and what will you do to support them, particularly developing countries?

IMO has an extensive programme of support to countries to implement IMO measures. In the Strategy, the Committee recognises that developing countries, in particular Least Developed Countries (LDCs) and Small Island Development States (SIDS), have special needs with regard to capacity-building and technical cooperation. An appendix provides an overview of relevant IMO initiatives supporting the reduction of GHG emissions from ships.

These include: the IMO Integrated Technical Cooperation Programme (ITCP); voluntary multi-donor trust fund ("GHG TC-Trust Fund"); the **Global Maritime Technologies** Cooperation Centres (MTCC) Network (GMN) EU supported project; the Norway supported Green Voyage 2050 project; the GHG-SMART Programme and Future Fuels and Technology for Low- and Zero-carbon Shipping Projects (FFT project) supported by Republic of Korea; the UNDP-GEF GloFouling Partnerships project; the Norway supported TEST Biofouling (Transfer of Environmentally Sound

Technologies) project; the Kingdom of Saudi Arabia-supported IMO CARES (Coordinated Actions to Reduce Emissions from Shipping) Foundation Project; the IMO-UNEP-Norway Innovation Forum; the IMO-EBRD-World Bank co-led Financing Sustainable Maritime Transport (FIN-SMART) Roundtable; and the NextGEN (Green and Efficient Navigation) portal and NextGEN Connect projects.

#### **READ MORE**

#### Some countries may rely more on imports and exports for the wellbeing of their economies more so than other countries. How would you go about mitigating this?

The 2023 IMO GHG Strategy says that the impacts on States of a GHG reduction measure/combination of measures should be assessed and taken into account as appropriate before adopting the measure in accordance with the Revised procedure for assessing impacts on States of candidate measures. Particular attention should be paid to the needs of developing countries, especially LDCs and SIDS.

When assessing impacts on states, the impact of a measure should be considered, as appropriate, inter alia, in the following terms:

- geographic remoteness of and connectivity to main markets;
- cargo value and type;
- transport dependency;
- transport costs;
- food security;
- disaster response;
- cost-effectiveness; and
- socio-economic progress and development.

Disproportionately negative impacts should be assessed and addressed, as appropriate.

The Procedure for assessing impacts on States of candidate measures for reduction of GHG emissions from ships (<u>MEPC.1/</u> <u>Circ.885/Rev.1</u>) identifies four steps:

- **Step 1:** initial impact assessment, to be submitted as part of the initial proposal to the Committee for candidate measures;
- Step 2: submission of commenting document(s), if any;
  Step 3: comprehensive
- response, if requested by commenting document(s); and **Step 4:** comprehensive impact assessment, if required by the MEPC.

Impact assessments should be evidence-based and should take into account, as appropriate, analysis tools and models, such as, cost-effectiveness analysis tools, e.g. maritime transport cost models, trade flows models, impact on Gross Domestic Product (GDP); updated Marginal Abatement Cost Curves (MACCs); and economic trade models, transport models and combined trade-transport models.

#### In the recent MEPC 80 session it was mentioned that before 2050 there will be periodic checkpoints between 2030 and 2040. What will these checkpoint signify and how will it be measured?

The indicative checkpoints in the 2023 IMO GHG Strategy to reach net-zero GHG emissions from international shipping are as follows:

- to reduce the total annual GHG emissions from international shipping by at least 20 per cent, striving for 30 per cent, by 2030, compared to 2008; and
- 2. to reduce the total annual GHG emissions from international shipping by at least 70 per cent, striving for 80 per cent, by 2040, compared to 2008.

The 2023 GHG Strategy makes reference to future annual IMO emission and carbon intensity estimates using the available data from the IMO Ship Fuel Oil Consumption Database (IMO DCS) and other relevant sources.

#### **ABOUT THE AUTHOR :**

Roel Hoenders is Head of the Air Pollution and Energy Efficiency team in the Marine Environment Division of the IMO Secretariat. He is responsible for IMO's regulatory agenda on the reduction of atmospheric pollution from ships in line with MARPOL Annex VI and the implementation of the IMO GHG Strategy. Prior to joining the IMO Secretariat, Roel worked as Legal Expert and Policy Officer on defining EU clean air and renewable energy policies in the Directorate-General for Environment of the European Commission and on promoting sustainable shipping in the environment department of the European Maritime Safety Agency (EMSA). In earlier functions at the European Sea Ports Organization (ESPO) and DHL Netherlands he advised on corporate climate and sustainability strategies.

#### **ABOUT THE ORGANISATION :**

The IMO is a specialised agency of the United Nations which is responsible for measures to improve the safety and security of international shipping and to prevent pollution from ships. It is also involved in legal matters, including liability and compensation issues and the facilitation of international maritime traffic. It was established by means of a Convention adopted under the auspices of the United Nations in Geneva on 6 March 1948 and met for the first time in January 1959.

## MAKING GREENER SUPPLY CHAINS A REALITY, STEP BY STEP



**Enoma Woghiren**, Regional Head of Health, Safety, Security and Environment, DP World Europe

The International Maritime Organization (IMO) has a new goal for the shipping industry: to reach net-zero emissions by 2050. In most circles, this immediately triggers thoughts of alternative fuels, but this isn't the only route to improving our carbon footprint and making sustainable supply chains a reality.

Trade is the lifeblood of the global economy, creating economic opportunity and improving quality of life for people worldwide. To sustain these benefits, logistics leaders like DP World are on a mission to clean up our act – and our oceans' wellbeing , the marine life that dwells within them, and the world's communities are all as important as sourcing cleaner fuels.

Trade has significantly increased over the last four decades. representing 36 per cent of global GDP in 1979 to 60 per cent in 2020. However, this has adversely impacted biodiversity, with global trade threatening about 30 per cent of species globally. Evidently, logistics leaders like us have a significant role to play in reducing this impact. If we are successful, we can protect the delicate, interdependent relationship between our world, our people, and our industry in order to keep trade thriving for many years to come.

Digitising global trade is playing a key role in developing sustainable and transparent supply chains. Electric vehicles at ports, monitoring systems through Blockchain and using Artificial Intelligence (AI) to find the most optimal transport routes are just some of the advantages digitalisation offers. The industry can also benefit from technology



**RIGHT** Yarimca LED lamp story

> during unforeseen situations if we master the art of using data-driven and automated supply chains across the world – including developing nations, some of which are more vulnerable to climate change.

This is why I believe it is crucial to explore aspects within and around our ports and our overall logistics operations to understand how they can help us create a better future.

## THE ELECTRIFYING POWER OF AUTOMATION

Electrification is currently transforming DP World's terminals throughout Europe. We reduced our absolute CO2 emissions by 20 per cent last year compared to 2021. On the face of it, this is a step towards decarbonisation in terms of reducing fossil fuel use. Yet, the automisation benefits that electrification offers are making our work greener in other ways too. DP World Europe is aiming to transition to 100 per cent electrification across all our ports and terminals equipment by 2050 – something we aspire to achieve using renewable electricity sources, which brings long-term benefits for preserving the environments and communities around our sites. These benefits include improving air quality to preserve biodiversity, which ultimately strengthens nature's ability to overcome carbon levels.

This broader thinking to our sustainability choices is having knock-on effects in other respects, too. Our port in Novi Sad signed a contract with the Electric Power Industry of Serbia for the purchase of 100 per cent renewable energy and acquired two electric forklifts to replace diesel-powered forklifts. Meanwhile, across the Black Sea, our port in Yarimca, Türkiye replaced its lighting systems with long-life LED lamps to save energy.



While these may appear to be small changes, they have an implied benefit on our society and communities. For example, using electric forklifts for a year is equivalent to growing 5,244 tree seedlings for 10 years. Each step counts in our journey to make trade sustainable.

#### **PIONEERING EFFORTS**

Sustainability breakthroughs help us identify new, long-term solutions to improve trade for our customers – all while helping them with their ESG targets too.

Due to the increasing demand for sustainable logistics solutions in Germany, for example, we became one of the first companies to order three 40-tonne e-trucks that will offer zero-emission delivery to our customers. These trucks will run on green electricity with a range of up to 400 kilometres and help us cut emissions by 700,000 tonnes over the next five years. By listening to market needs, supply chain leaders can make a real societal and environmental change, supporting all sectors in their carbon reduction goals.

We also strive to support communities that aim to pursue sustainable ways of living through our vast network, expertise, and capabilities. One such project has been developed in France. Our EUROFOS team has played a pioneering role in building and delivering the first of three floating wind turbine engines to support the country's first ever floating wind farm. This offshore renewable energy farm will sit in the Mediterranean Sea, generating enough electricity every year to support 45,000 people.

In a recent report, the UN issued a warning that the world might not be able to meet its target of providing clean and affordable energy access

### ABOVE

Electric straddle carrier at London Gateway for all by 2030, as 675 million people still live without electricity. However, initiatives like the one we have at EUROFOS demonstrate how we can turn the tide on this, laying the foundations for a just transition where we can create positive change for all communities, wherever they may be.

#### **PROTECTING OUR OCEANS**

The majority of trade – about 80 per cent globally – is carried on our oceans. As a global end-to-end logistics operator, our business is committed to safeguarding ocean health, protecting biodiversity, and accelerating our efforts to improve access to reliable clean water and sanitation. With the help of our global network and partners, we make it our priority to tackle plastic pollution, restore aquatic biodiversity, and develop water, sanitation and hygiene (WASH) infrastructure.

#### Sustainable Developments

#### RIGHT

Clean up activity in the UK

During World Oceans Day in June, our colleagues across Europe and around the globe undertook clean-ups at local beaches and waterways and engaged in water awareness activities. In Antwerp, our team partnered with nonprofit organisation Kiemkracht, to clean up our terminal and prevent garbage from entering nearby rivers. We collected 25 kilogrammes of waste, which included plastic packaging material. Further, to protect the natural wetlands near our site, our team in Belgium collaborated with Natuurpunt, an independent voluntary association protecting vulnerable and endangered nature, and strengthened our efforts in protecting natural habitats.

Over in the UK, we partnered with the Port of London Authority to tackle pollution in the Thames estuary by introducing passive debris collectors (PDC) – floating bin-like structures designed to collect litter in tidal rivers. This project protects a vital trade route and its biodiversity, creating an environment where we can work in harmony with nature rather than against it.

Every effort we make is with the intention of making the world a better place. By doing so, we are not only helping communities prosper, improving trade and making a positive impact on our environment, but we are also bridging the divide



and barrier that exists in making our world inclusive, safe, and interconnected.

As we look to build more sustainable supply chains that better protect our oceans, I believe biodiversity and global communities will play an important role. Each step will contribute to leading us closer to our goal: supporting global trade to become a more resilient, efficient, and sustainable sector across all areas of the supply chain.

#### ABOUT THE AUTHOR:

Enoma Woghiren joined DP World in 2019 as Regional Head of Health, Safety, Security and Environment for the Europe region, bringing extensive leadership and international experience from across the maritime, transport, and engineering sectors.

In his current role, Enoma leads and delivers the region's safety strategy to ensure that everyone goes home safe, and that the environment is protected and enhanced wherever possible.

#### **ABOUT THE COMPANY:**

Trade is the lifeblood of the global economy, creating opportunities and improving the quality of life for people around the world. DP World exists to make the world's trade flow better, changing what's possible for the customers and communities we serve globally.

With a dedicated, diverse, and professional team of more than 103,000 employees spanning 75 countries on six continents, DP World is pushing trade further and faster towards a seamless supply chain that's fit for the future.

#### **RIGHT** E-trucks in Germany