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WORLD BUNKERING

THE OFFICIAL MAGAZINE OF IBIA

A NEW ORDER?

TRANSITION IN THE BUNKER INDUSTRY



INSIDE THIS ISSUE:

REGIONAL FOCUS: CHINA

HIT OR MISS? EU'S 'FIT FOR 55' PROPOSALS

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ENERGY TRANSITION

Bunkering in a period of unsettling change

Dear Reader

As I write this the price of LNG has continued to surge to new heights, as we report in Industry News. This has caused consternation among many governments whose countries' economies now rely heavily on gas as their main fossil fuel.

Their concerns were of course mainly about the cost of the fuel, but there has been an interesting knock-on effect. In the UK some fertiliser plants stopped production because the cost of LNG had become prohibitive. It turns out that a by-product of fertiliser production is carbon dioxide (CO_2). Yes, that's right, the stuff the shipping industry has been told it has got to stop emitting into the atmosphere.

Apparently, the CO_2 was needed so desperately that the UK government did a deal to subsidise continued production at the plants. The CO_2 goes to the food industry for fizzy drinks and preserving refrigerated meat in the packs we buy in the supermarkets. I have no idea of the amounts involved but when all those fizzy drinks bottles and those film-wrapped packs are opened there is only one place that the released CO_2 can end up.

Talking of where CO_2 ends up, this issue looks at carbon capture. This had until recently been more or less discounted. As an expert in this field, Robert Allen, explains, carbon capture and storage (CCS) is much more difficult to achieve in a viable way at sea than on land. Nevertheless, significant amounts of money are being put into developing this technology. The message so far seems to be that we are looking more at reducing CO_2 emissions rather than total CO_2 capture. Nevertheless, achieving significant reductions in the short to medium term could be useful while alternative fuels are developed.

It is commonplace for the general press to portray shipping as a dirty, CO_2-emitting industry which is sitting on its hands and looking the other way on climate change. Nothing could be further from the truth as Unni Einemo's interview with Bud Darr, Executive Vice President, Maritime Policy and Government Affairs at MSC Group demonstrates. Basically, this very large shipowner is trying out almost all options to reduce its carbon footprint.

Meanwhile another very big shipowner is putting a substantial amount of money into using methanol as fuel. As reported in Environmental News, A.P. Moller - Maersk plans to introduce a series of eight 16,000 TEU container vessels that are capable of being operated on methanol, and it aims to use methanol that is carbon neutral. These ships will be about 15% more expensive to build than oil-fuelled ones.

As has been true for some time, this issue of *World Bunkering* is full of developments in alternative fuels of various kinds. However, the major shipping industry organisations believe a fund is necessary to ensure sufficient progress. As Unni Einemo reports, IMO's recent MEPC 76 discussed, briefly, a revised proposal for an International Maritime Research and Development Board (IMRD). In the event no final decisions on this have been made but Unni's comprehensive report on the work of IMO shows just how much IBIA is involved in the important decisions that affect the industry.

Covid-19 is, alas, still very much with us and that is reflected in our pages, particularly in the geographical features. Russia's bunkering sector has been badly hit by the pandemic though, as Olga Bogacheva explains, several other factors have had an impact. China and Singapore have also struggled with Covid-19 but our features have plenty to report that is positive.

As ever *World Bunkering* monitors the changes that are happening in the bunker industry but it is very difficult to take an overview and see where we are heading. Accurate crystal balls are in short supply. However, IBIA board member Adrian Tolson has written a thought-provoking article on the state of play for independent bunker suppliers. Giving his personal view, he argues that while the 'golden age' for independents, if it ever existed, may be over but there is hope that investment in developing expertise and knowledge and the ability to quickly evolve "will ultimately provide opportunities and a lifeline into energy transition".

And indeed, energy transition is perhaps the continuing theme of *World Bunkering* as the industry faces a multitude of challenges in the short and long term.

David Hughes
Editor



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TRANSFORMING IBIA

Our regional boards will ensure that IBIA becomes both more international and has a more local reach

I am presently on my sixth year as an IBIA board member and in my final year as Chairman, as my tenure ends on the 30th of April 2022.

When I joined the IBIA board it was with the ambition of evolving IBIA to become more international and with a stronger voice on behalf of our industry.

In my humble opinion, my mission has been accomplished.

One of the key projects that I have initiated during this time, is the launch of a new structure for IBIA with the intention of ensuring that IBIA has a stronger international reach and a more profound local commitment and understanding of the regional challenges in our industry.

With positive support from my fellow board members, we mutually agreed on the voyage towards creating a new structure that would change the IBIA structure from having one single global Board to a new world where the association has five regional boards consisting of IBIA members located in each region, as well as the global board. The chair of all five regional boards will by default have a seat and an equal mandate in the global board, ensuring that the voice of all regions will be represented at all times.

This work may on paper seem rather easy, but we have met and overcome many obstacles along the way and still expect a few more before the new structure will be solidly anchored and able to further strengthen IBIA's global presence.

However, we are very well on our way. So far, we have established two of the five regional boards in Asia and Africa, and we expect to appoint the regional board for Americas within this year. The working group for establishing a regional board for the Middle East has also started working and all going well, we expect a proposal for that region in the early summer of 2022.

Secondly, our Legal Working Group has been working on the task to ensure a transparent, solid and fair election process for the future structure and the first proposal has just been received by the Board. We are in the process of reviewing this and consider it a key enabler for the new structure to become fully implemented.

All this work has required a strong and committed effort from not only the IBIA Board, but also from regional working groups, the appointed regional board members and last but not least the IBIA Legal Working group. I would like to thank you all for your commitment, for the time spent and your support to developing and growing IBIA.

On behalf of the Board, I can say that with this structure, we expect that IBIA will take a major step towards becoming both more international and have more local reach and understanding. Both are essential for better understanding the many challenges and changes that our industry is facing in regards to the complexity of the green transition.

As an IBIA member you have the chance to make a difference by engaging actively in IBIA's work, either in one of our working groups, our regional boards or in our membership meetings, events, conferences or education that are all part of the offerings IBIA will continue to be based on. With a membership you also contribute to ensuring that we can engage IBIA members across continents, businesses, and with different points of view on the future and thereby create and prepare the platform for our industry to overcome the challenges ahead on our voyage towards a greener future.

Please check our webpage for further details of IBIA's offerings, events and key projects. I hope to see as many of you as possible getting engaged in IBIA's activities one way or another, as IBIA depends on strong member engagement and the support we get from you all.

Henrik Zederkof
Chairman



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EVOLUTION, NOT REVOLUTION

My 2021 calendar continues to be full of meetings and conferences connecting IBIA with our members, IMO delegates and organisations we share interests with, and deadlines for input to IMO's work. Many of these engagements revolve around building the frameworks to move us toward a cleaner and greener future.

This is reflected in IBIA's working groups, the subjects I speak about at IBIA's conferences and member meetings, and events I am invited to speak at. It is also very much the case at the IMO, where I represent IBIA through submissions, input to correspondence groups that are developing IMO regulations and guidelines, and through IMO meeting participation.

'Cleaner' has a double meaning in this case. One part relates to the reputation of the bunker industry, which we all know could be better. In a market where almost everybody has to compete on price, it can be hard to maintain a high level of quality and service, while also meeting environmental and safety standards. IBIA supports efforts to set up effective bunker licencing schemes that are firm but fair, preferably incorporating massflow meter (MFM) technology in the world's major bunker hubs. We have seen that they help in creating a level playing field for quality suppliers. Judging by the large number of participants in the IBIA Bunker Licensing & MFM working group, many of our members would also like to see effective and transparent bunker licensing schemes.

The other part of 'cleaner' is twinned with 'greener' and relates to reducing various forms of pollution to look after our environment. These days, that mainly revolves around fighting climate change.

Ensuring that our industry can provide shipping with fuels that comply with environmental regulations and safety standards, both now and in the future, requires huge efforts. Measures to reduce greenhouse gases from international shipping dominates the agenda at the Marine Environment Protection Committee. The GHG reduction drive is also evident in other IMO work to ensure the right safety provisions are put in place for ships to use a growing variety of fuels that produce fewer air pollutants and reduce overall greenhouse gas emissions.

The cleaning and greening of our industry will require cooperation and coordination across multiple stakeholders. We need to build understanding of what impacts and issues we might expect and need to resolve. We address these issues in the IBIA Future Fuels Working Group and the IBIA Technical Working Group; the latter is always involved in our input to IMO work relating to fuel safety, both for the oil-based fuels that still dominate the industry today, and for low-flashpoint fuels.

The European Commission has caused a stir by signalling its intentions to introduce a raft of new measures to speed up the transition to renewable and low-carbon fuels through the FuelEU Maritime proposal. I spent many, many hours studying thousands of pages that make up the "Fit for 55" package of proposals published in mid-July, which includes the FuelEU Maritime proposal. It raises a lot of questions and issues for marine fuel buyers and sellers, not just in Europe but globally. It aims to speed up the pace of decarbonisation, but the authors of these proposals realise that the energy transition for maritime transport needs to be gradual. They also think regulations will be required to push the industry in the right direction. I think we all understand and appreciate the intention behind these proposals, but it has ruffled many feathers that the EU is prepared to take these steps unilaterally, as opposed to through the IMO. The EU member states are, however, among those pushing for the IMO to move faster on concrete measures to reduce GHG. The IMO needs consensus among member states, or a majority, to adopt more stringent regulations addressing GHG emissions, and these are tough debates.

Looking at my speaking engagements since June this year, they have been quite varied and it has been a great honour to be invited. I took part in a CIMAC Tech-Talk where I did a presentation on the IMO regulatory framework for biofuels. I delivered two presentations at the St. Petersburg bunker forum; a review of the IMO 2020 impact on the global bunker market, and an overview of IMO regulations impacting the bunker industry. At the IBIA Conference in September, I presented and took part in a panel on IMO and the energy transition, and had a long conversation with Bud Darr of MSC on the subject, plus I moderated a panel on understanding VLSFO. During London International Shipping Week, I presented on Bunker Licencing at Petrospot's Transparency in Bunkering Forum as part of a panel debate. I was invited to present at APPEC for the second year running, speaking about the regulatory road to decarbonising shipping. As this issue of *World Bunkering* goes to print, I am also preparing to participate as a panellist at the Carbon Forward 2021 conference to talk about the EUs Fit for 55 regulatory proposals. It goes to show how important carbon emissions are becoming to our sector.

I would like to mention another thing I did during the UK summer, in a personal capacity but nevertheless representing IBIA. On a sunny Saturday in June, I joined an international team of IMO delegates to do a 100 km bike ride in London's Richmond Park. This is the fourth time I have taken part in the annual IMO Team fundraiser for the Mission to Seafarers. It felt good to be part of this team effort. We raised about £9,000 which will be spent to support seafarers around the world who have faced unprecedented challenges due to the Covid-19 pandemic. IBIA is also a co-sponsor of a paper urging IMO Member States and relevant authorities to commit to improving their plight by recognising seafarers as key workers and ensure they get priority access to vaccines, medical care and facilitation of travel to enable crew changes.

The theme for IBIA's Annual Convention this year is "Shipping and Marine Energy: Evolution or Revolution?" I think pushing us toward a cleaner and greener future is an evolution, it cannot happen overnight, and it requires committed efforts from multiple stakeholders. But we can hope for revolutionary technical developments to help speed up the process.

Unni Einemo,
Director, IBIA
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MODULE 1 TO PURCHASE	Bunker Market Regulations and Enforcement	Online at www.ibia.net
MODULE 2 TO PURCHASE	Understanding ISO 8217 and ISO 4259	Online at www.ibia.net
MODULE 3 TO PURCHASE	Best practice for suppliers with VLSFO	Online at www.ibia.net
MODULE 4 TO PURCHASE	Best practices for users with VLSFO	Online at www.ibia.net
MODULE 5 TO PURCHASE	Adapting to a changing market	Online at www.ibia.net
MODULE 6 TO PURCHASE	Compatibility and stability – Issues with VLSFO fuels and the measurement of Stability	Online at www.ibia.net
MODULE 7 TO PURCHASE	Sales terms and conditions – The purpose, structure and application of Sales terms	Online at www.ibia.net
MODULE 8 TO PURCHASE	Quantity measurement – The principles of quantity measurement including Mass Flow Metering	Online at www.ibia.net
MODULE 9 TO PURCHASE	Sampling – The basics of sampling, sampling methods and sample handling	Online at www.ibia.net
MODULE 10 TO PURCHASE	Fuel quality – Impact on storage, treatment and use in the engine	Online at www.ibia.net
MODULE 11 TO PURCHASE	Alternative Fuels *NEW*	Online at www.ibia.net
MODULE 12 TO PURCHASE	Bio Fuels *NEW*	Online at www.ibia.net
MODULE 13 TO PURCHASE	Exhaust Emissions *NEW*	Online at www.ibia.net
OCTOBER		
6 - 7	2 Days Basic Bunkering Course (SS600:2014 & SS648:2019)	Singapore, Asia
13	IBIA Member Meeting: Topic: The role of bunker suppliers in changing markets	Online at www.ibia.net
27 - 28	2 Days Advanced Bunkering Course (SS600:2014 & SS648:2019)	Singapore, Asia
NOVEMBER		
2 - 4	IBIA Annual Convention 2021	Online at www.ibia.net
10 - 11	2 Days Basic Bunkering Course (SS600:2014 & SS648:2019)	Singapore, Asia
18	IBIA Member Meeting: Topic: The role of Traders / Brokers in changing markets	Online at www.ibia.net
18 - 19	IBIA Training: Mauritius	Port Louis, Mauritius
24 - 25	2 Days Advanced Bunkering Course (SS600:2014 & SS648:2019)	Singapore, Asia
DECEMBER		
1 - 2	2 Days Basic Bunkering Course (SS600:2014 & SS648:2019)	Singapore, Asia
14	IBIA Member Meeting: Topic: The role of ship owners in changing markets	Online at www.ibia.net
15 - 16	2 Days Advanced Bunkering Course (SS600:2014 & SS648:2019)	Singapore, Asia

BUNKERING INDUSTRY EVENTS 2021

OCTOBER		
5 - 6	Marine Energy Transition Forum	Antwerp, Belgium
6 - 7	Carbon Forward 2021 Conference - 6th Annual Conference	Online
26 - 28	Maritime Week Americas 2021	Panama
NOVEMBER		
8 - 12	Maritime Week Gibraltar	Gibraltar
DECEMBER		
1 - 2	S&P Global Platts Mediterranean Bunker Fuel Virtual Conference	Online

**All dates were correct at time of going to print but may be subject to change, please refer to IBIA's website (https://ibia.net/events/) for any updates*



EVENT PLANNING AND COVID-19

IBIA continues to offer opportunities for the digital world we are living in, while exploring a return to physical events

The success of our **'Bunkering & Shipping in Transition'** part 1 Conference in April this year increased our members' appetite for accurate and up-to-date information from and about the industry. Listening to their needs we created a sequel, focusing on the Americas this time.

The conference covered several topics influencing the bunker and shipping industry such as: IMO Regulatory Changes, Shipping & Freight Markets focusing on the return of the cruise industry, Updating on VLSFO, Alternative Fuels for Shipping, Bunkering and Digitalisation, Credit Risk and Bunker Claims. We leveraged the industry's top experts to maximise the bunkering and shipping discussions. We would like to thank those who attended, our valuable speakers, moderators and sponsors for their support to make this conference such a success. Please allow me to mention our Bronze Sponsors Intertek Lintec and Proman, our exhibitors Bunker Metric, Simms Showers, Seahawk, Nereus, Inatech and ClearLynx, our media sponsors World Bunkering, Ship & Bunker, Manifold Times, MundoMaritimo.net, Petrospot/Bunkerspot, OPIS Biofuels, allaboutshipping.co.uk, efoplistes.gr and Actualidad Maritima y Portuaria.

Always keeping the tradition and being loyal to our members, it is this time of the year where we are in the heat of preparations for our most anticipated conference, the **IBIA Annual Convention 2021** on 2-4 November.

As we approach the end of 2021, alternative fuels are now firmly in the spotlight for the global bunker and shipping industries. The European Union has set out an ambitious agenda for decarbonising shipping in its part of the world, support is building at the IMO for global carbon taxation on conventional bunker fuels and the upcoming COP 26 event is likely to draw more attention to the role of shipping in global efforts to reduce GHG emissions. At the same time, a swathe of more familiar themes faces these industries: access to credit and consolidation among bunker traders and suppliers, fluctuations in market conditions for different segment of the shipping industry, continued uptake of scrubbers as an IMO 2020 solution, and all against the backdrop of the slow escape from the COVID-19 crisis. IBIA's Annual Convention 2021 will look at all of the above and it is an event **not to be missed!** This dynamic event will include a virtual exhibition hall, access to extensive in-depth on-demand content, and a series of live panel discussions with audience participation.

If you would like to participate in the IBIA Annual Convention as a **speaker and/or sponsor** you can contact me directly. Now to the question everyone is waiting to find out about: will the IBIA Annual Dinner take place in London during IP week in February 2022? Yes, it will!

We are planning a physical event of a smaller scale than our traditional IBIA Annual Dinner for February next year, depending on COVID status and governmental restrictions, and we will

be pleased to hear that you are keen to join us. Due to the pandemic, there are a number of factors we are still taking into consideration, and will be in a better position to come back to you with more information around the middle of October. We would like to assure you that, as organisers, IBIA will take all necessary measurements to ensure your safety.

On a different note, IBIA's on line course modules have proven to be highly beneficial for the industry's stakeholders around the world. IBIA runs a solid series of **online training modules** to educate, inform and help the members of our industry to understand various aspects of the industry, including and offer guidance on how best practice and the application of international standards can improve their ability to source, supply and use the fuels required now and in the medium term. This course is of value to sellers, bunker deliverers, surveyors and ship operators and we are in the pleasant position to announce three new modules everyone has been waiting for:

Alternative Fuels and their place in the fuel supply chain as we move towards the IMO targets for reducing GHG emissions; **Biofuels** and its production, use and emission issues and **Exhaust Emissions**, their remediation and the impact on future fuels. To find out more and to register for your modules, you can visit IBIA's website.

If you are reading this article and you want to be part of the IBIA community, participate in the member meetings, attend training courses and actively contribute to our conferences, you can become a member now.

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Alexis X. Rodriguez
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Director and IMO Representative, IBIA
Bud Darr
Executive Vice President, Maritime Policy and Government Affairs, MSC Group
INTERVIEW: How a Large Diversified Shipowner is Managing the Energy Transition

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By joining IBIA you will become part of a global network of bunker industry experts who collectively form one of the world's leading authority on bunkers. Not only will you have access to a wealth of information and insight (we publish newsletters and industry updates on current issues) which offer pragmatic advice for managing the industry's challenges; members also have the potential to shape and influence both international and local legislation. This happens through IBIA's Working Groups which are responsible for developing industry guidance, participation in IMO correspondence groups, solving long-term industry issues, and addressing both commercial and technical aspects.

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- 15% discount for 3 years membership, (Paid in one instalment) – Guarantee no membership price increases for the next 3 years.
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IBIA AFRICA REGIONAL BOARD ANNOUNCED

IBIA welcomes five of Africa's influential bunkering experts as we create a platform for furthering the African chapter of IBIA

IBIA Africa is pleased to announce the newly constituted Interim Regional Board for Africa. The purpose of the Regional Board is to facilitate and ensure that the interests of the Africa bunkering industry are truly represented regionally and globally, feeding into the Global Board for IBIA. Paul Maclons, CEO of African Marine Solutions Group (AMSOL) will chair the Regional Board and join the Global Board as a Director to represent Africa on the Global Board.

It is our greatest pleasure to introduce Africa's first Regional Board:

Paul Maclons
CEO, African Marine Solutions Group (AMSOL)
IBIA Africa Chairman



Paul has over 21 years' management experience, of which 16 are in the marine industry and is an accomplished marine executive having served as Managing Director of leading South African specialist marine solutions provider SMIT Amandla Marine since 2005. Paul is a shareholder and Chief Executive Officer of African Marine Solutions Group (AMSOL), which acquired the business of SMIT Amandla Marine in December 2016.

Paul has several years' experience as a former board member of the South African Oil & Gas Alliance, SA/Netherlands Chamber of Business and currently serving as Director on the various AMSOL Group Companies, the South African Maritime Training Academy and a member of the Institute of Directors.

Having attained degrees in Physics and Chemistry as well as Engineering Management, Paul worked for several State owned South African entities in various managerial roles before becoming a consultant. He later moved into private industry and was appointed in the role of Managing Director of regional specialist marine solutions provider SMIT Amandla Marine, overseeing the transformation of the organisation and implementing a growth strategy to expand into new markets. He led the management buy-out of the company, which was concluded in 2016.

Grant Bairstow
Head Aviation and Marine Technical, Vivo Energy



Grant holds a Master of Commerce Degree (Maritime Studies), National Higher Diploma (Maritime Studies- Cum Laude) and National Diploma (Explosive technology –Cum Laude) whilst also being a Master Mariner, Lead Auditor (ISO 9001), SIRE Inspector and accredited to the Professional Examinations Institute of Chartered Shipbrokers.

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Grant has 32 years' experience within the marine industry and has amassed a wealth of experience including salvage, marine construction, submarine rescue, bunkering, marine and operations management, and has served as Master on a wide range of vessels. Grant currently leads HSSEQ as well as Aviation and Marine Technical functions through 26 countries, he is a ESG Committee member and sits on the Vivo Energy Overseas Holdings Board.

Siyamthanda Maya
Managing Director;
South African Marine Fuels (SAMF)



Siya is a Managing Director and a cofounder of South African Marine fuels, a licensed bunkering operator at anchorage in Algoa Bay. In this role, Siya leads a team providing bunkering operations and services in Port Elizabeth.

Siya has more than 18 years of experience in the energy industry during six of which she specialised in oil and gas trading and bunker operations. She is a big believer in human advancement through credible skills transfer and development, with specific focus on women skills development and enablement.

Siya is an active member of WISTA South Africa chapter, holds a Bachelor of Technology in Electrical Engineering as well as an MBA from the University of Stellenbosch Business School.

John B. Tagoe
Head of Technical & Special Products,
GOIL Company Limited (GOIL)



John joined Ghana Oil Company Limited (GOIL), a public listed company, as a Sales Engineer in the year 2000 having previously worked with Ghana National Petroleum Company (GNPC) for nine years.

John has gone through the ranks of the company and is now the Head of Technical & Special Products Department which deals with Bunkering, Aviation, Lubricants, LPG, Bitumen and Diesel for the Mining Industry.

John is a Mechanical Engineer and a Marine Technologist. He has had several on the job training programs including IBIA bunkering Courses.

John Hughes
Managing Director, SABT



John has worked in the bunker industry since 2006, all the while focusing on the African bunker market. He has spent many days in barely road-worthy taxis, rushing around traffic-congested African cities, striving tirelessly to mine through hundreds of opportunists with a laptop and cell phone that claim to be bunker suppliers.

All in search for that rare precious gem; an African supplier that can get the job done on time and within spec.

He has been held up at gunpoint in Nigeria, almost quarantined for Ebola in Sierra Leone and been close to drowning but still maintains that he has the best job in the world. Every day is different with fresh challenges and opportunities. The quest to provide long term value for a vision to uplift African ports to meet world standards is something of a personal passion which continues to sustain him today.

Our goals and aims for the Africa Regional Board will be to increase and broaden our reach through encouraging new members, online member meetings, engaging with legislative bodies and ensuring dissemination of vital IMO information to our membership.

Should any of our members wish to engage further regarding the above, you are encouraged to contact me directly.

We would like to take this moment to welcome onboard our new Board members and look forward to your support and continued dialogue.

If you would like to engage with the IBIA Africa team, or become a member of IBIA, explore opportunities to be a speaker, sponsor or find out more about our local activities, engagements and events, please contact me.

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IBIA CODE OF ETHICS

IBIA is appealing to all of its members to join this important initiative by showing support for our Code of Ethics. It's an aspirational statement and an important step towards our aim of promoting the adoption of a common set of ethical values across the industry. We believe that when the entire industry acts with the highest ethical standards that this will be to the benefit of us all.

FAIR BUSINESS

- We conduct our business in a fair and transparent manner
- We will always act in the best interest of each business partner and are honest with the stakeholders involved in our business
- We only engage in business using compliant products, and deliver the quality and quantity agreed with our business partners
- We always act in good faith

BEST PRACTICE

- We always act in accordance with applicable legislation, including sanctions
- We always meet contractual obligations in a timely manner
- We always do our best to avoid disputes and seek resolution promptly if disputes occur
- We comply with all applicable competition and anti-corruption laws
- We respect confidential information and do not unlawfully use any intellectual property

SOCIAL RESPONSIBILITY

- We seek to minimise our environmental impact and the risk of environmental damage
- We will always ensure employees' health, safety and security
- We offer equal opportunities, prohibit unlawful discrimination and respect human rights
- We offer the same opportunities for professional development to all our employees

TRANSPARENCY

- Our accounts and records are kept accurately and reflect the true state of the company and its operations
- During audits or investigations, we fully cooperate with the authorities
- We will not receive or give any gift or entertainment of disproportionate value
- We are fully committed to preventing both money laundering and terrorist financing

To sign up for the Code of Ethics working group email **ibia@ibia.net**

REOPENING IN-PERSON ACTIVITY

IBIA Asia office is opening up in a calibrated way in line with Singapore's recovery from Covid-19



In August 2021, Singapore eased some Covid-19 restrictions as more than 70% of the city-state's population had been fully vaccinated with two doses of Covid-19 vaccines. Singapore has one of the world's highest vaccination rates against the virus. IBIA Asia's Singapore office staff and trainers are all fully vaccinated too, and we are bringing back in-person training. We are prepared, in case Covid-19 restrictions are imposed again, for conducting live online training to keep bunker industry training sustainable during this time of uncertainty.

IBIA Asia first Webinar

IBIA Asia hosted the first IBIA Asia webinar- "Bunkering Innovation- Bunkering Digitalisation and its legal landscape" on 22 June 2021. It was well-received, attracting over 100 delegates globally. The webinar was co-sponsored by two new Asia members: Helmsman LLC and Bunkerchain Pte Ltd. For those who missed the webinar, it can still be viewed on YouTube via this link: https://www.youtube.com/watch?v=i-bOXjucVx0

For Asia-based bunker industry stakeholders, if you are interested in sponsoring any future IBIA Asia webinar, feel free to contact me to discuss further in detail on regionalmanagerasia@ibia.net

Technical Committee participation in Singapore Council

I have been nominated to represent International Bunker Industry Association (IBIA), Asia, as the Chairman for the Singapore Accreditation Council Technical Committee for Cargo Inspection (TCCI) for a three-year term from 1 July 2021 to 30 June 2024.

I also represent IBIA Asia in the Singapore Chemical Industry Council Technical Committees for Bunkering and LNG Bunkering, aiming to drive and be part of the Singapore Standards for Bunkering both conventional fuels and LNG.

The Technical Committee for Bunkering has approved the Draft of the revised SS 524 - Singapore Standard Specification for Quality Management for Bunker Supply Chain (QMBS). The Singapore Chemical Industry Council (SCIC) will issue the Draft Standard for a two-month public comment from 3 September 2021 to 5 November 2021. The public comment form is available on https://www.enterprisesg.gov.sg/quality-standards/standards/for-companies/comment-on-draft-standards

The Singapore Bunker Claims Procedure ("SBC" Terms) section of SS 600 (Singapore Standard Code of Practice for Bunkering by Tank Gauging) is currently under review to gather input from the bunker industry through a market survey. The full revised SS 600 standard is expected to be ready for public comment in January 2022.

Current Training Programme

The IBIA Asia office offers mandatory training for the bunker sector in Singapore with courses that have been approved and certified by the Maritime and Port Authority of Singapore (MPA).

They are:

- Singapore Standard SS 648:2019 - 1 Day Training for currently approved Bunker Surveyors and Cargo Officers. In 2020, we conducted the training for 90% of certified cargo officers and bunker surveyors.
- Singapore Standard SS 600:2014 + SS 648:2019 - 2 Days Basic Training for new Bunker Surveyors and Cargo Officers.
- Singapore Standard SS 600:2014 + SS 648:2019 - 2 Days Advanced Training for new Bunker Surveyors and Cargo Officers.

The IBIA Asia office also offers specialised training for the bunker sector in Singapore with our MPA-approved course, Understanding Marine Fuel. We completed two successful live on line-courses in October and November 2020. IBIA Asia is planning to hold this course again in October/ November 2021.

If you are interested in becoming part of the bunker community through IBIA membership or interested in the bunkering training offered by IBIA Asia, we encourage you to contact Noraini at noraini@ibia.net or myself on the details below.

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CHALLENGE ACCEPTED

Challenges don't come much bigger than reducing and ultimately eliminating GHG emissions from shipping. Unni Einemo spoke with Bud Darr about how MSC can respond to this challenge

MSC Mediterranean Shipping Company is a world leader in container shipping and the world's third largest cruise liner. It also operates ro-pax and ro-ro ships, plus some high-speed craft and bulk carriers. Moreover, it has diversified its activities to include overland transportation, logistics and a growing portfolio of port terminal investments. During IBIA's Conference Series: Bunkering & Shipping part 2 in September, Unni Einemo had a long conversation with Bud Darr, Executive Vice President, Maritime Policy and Government Affairs at MSC Group. MSC, in Bud Darr's words, represents a "microcosm" of shipping as a whole with both global and regional shipping activities.

Unni Einemo (UE): The big talking point these days is how shipping can reduce greenhouse gas (GHG) emissions. However, the industry has already experienced an energy transition requiring new fuels and technology with the implementation of first the 0.10%S limit in emission control areas (ECAs) from 2015 and then the 0.50%S limit outside ECAs in 2020. How has MSC been dealing with this first energy transition?

Bud Darr (BD): We have used a wide range of solutions to comply with the sulphur-driven regulations. We've used blended fuels, we've used distillates, our first LNG fuelled ships will be delivered next year helping us to further improve CO_2 emissions performance right now while we progress towards bio-or synthetic options, and we continue to use residual fuel in conjunction with exhaust gas cleaning systems (EGCS). We deployed a strategy that doesn't try to be 'one size fits all' but tries to match up the best available solution for the ships and the service that they are on.

UE: We have heard about MSC ordering LNG-fuelled cruise ships, are you doing it on the container side as well?

BD: We have ordered 11 ships above 15,000 TEU with LNG dual-fuel engines, slated for delivery beginning in 2022, in addition to three firm orders and a couple of options and development work on the cruise side of the business. It came first on the cruise side due to sensitives around local air pollution where cruise ships tend to operate. Generally, we're now seeing increasing uptake on the container side and other segments too. We have also been exploring for several years the significant potential benefits of progressing from fossil-based LNG to bio-LNG or synthetic variants.

UE: How would you say the low sulphur compliance solutions MSC as adopted have performed? Do any stand out for good or bad reasons?

BD: From our perspective there have not been specific winners or losers. It has been a case of evaluating the best solution on a case-by-case basis.

One thing that has caught most of us by surprise is the rapidly evolving negative public sentiments regarding EGCS in general, not necessarily based on science, to the point that I think there is some intentional misinformation out there. This is not a loophole or a way to get around the regulations. Those of us that were in the room [at the IMO] during those years of negotiations know that abatement technology was an integral part of the agreement to enable introducing the 0.50% sulphur limit in 2020. We are prepared for it and have invested almost



exclusively in hybrid systems so we can adapt to circumstances during the lifespan of those systems.

VLSFO has had its critics too, perhaps in particular from those who want to see all heavy fuels out of marine usage.
All of these solutions have their challenges from a policy perspective, and the best thing we can do is to focus on not just how do we comply with the regulation, but also how do we find the best balance between what's environmentally protective and economically feasible. And as we think about decarbonisation, we need to look much further ahead.

UE: Let's turn now to the bigger energy transition. So far, the IMO has only adopted regulations mandating energy efficiency measures, such as the Energy Efficiency Design Index (EEDI) and the recently adopted Energy Efficiency Existing Ship Index (EEXI). Has it been a struggle to comply, and what are the biggest challenges for shipowners so far?

BD: It's presented a few challenges, but they can be managed. At the end of the day, the EEDI, as well as the EEXI, is just an algorithm to predict, based on one set of values, what a theoretical energy efficiency rating would look like for a particular ship. That numerical rating is based on assumptions that do not necessarily have the precision we need to apply in real life. We need to work with shipbuilders to make sure we're not just complying with the EEDI, but also whether they have really optimised the energy efficiency of the ship the way we want. The experience we have gained with the EEDI should help us with the EEXI.

Then we have the CII (carbon intensity index) which, rather than a fixed design number, will be a measure that will have to be continually re-evaluated. I think there will be some real challenges with trying to find the right balance between something that is simple enough and something that is accurate enough.

As an example, when you choose DWT as a denominator, you won't necessarily create an accurate reflection of the societal benefit which that ship provides through transport work in all conditions. Bulk carriers, for example, could improve their CII score significantly by operating extra voyages in ballast that would otherwise not be required by the market. That would improve the CII score, but drive up the absolute emissions and make very little environmental or operational sense otherwise.

We need to work within the limitations of the system, but there are still some really important details to be worked out with the CII. It is kind of like trying to change the tyres on a truck while it is rolling down the highway because some of the important questions are still to be answered, but I think we can get to a point where we can manage it.

For ships that have already been optimised for energy efficiency, you will probably see a significant effect on the amount of power that can be consumed while still meeting the regulatory standard. That has some knock-on effects. For example, if that results in speed reduction, that will have an impact on how many ships you need to have on the water to maintain the same kind of service. These are the type of things were are thinking through in great detail today with our shipbuilders, with class societies and our internal experts.

UE: In the longer term, energy efficiency measures alone will not be sufficient to reach the GHG reduction targets adopted by the IMO. In fact, already now, low-carbon fuels can play a part in meeting some of the efficiency regulations adopted by the IMO. This must make it really challenging to decide what to do with newbuilds. Has MSC made any decisions regarding what type of alternative energy solutions you are going to use in the future, and have you got a strategy to deal with that?

BD: Shipbuilding is indeed a challenge; you are making very large capital investments. In the case of a modern cruise ship, you're talking maybe a billion euro or more per ship and you're making that on the basis of a life span that could be 30 or 40 years. For a containership it is a bit less but still a very significant capital investment where the decisions you make today are going to have effects very far into the future for the health of the business and the environment overall.
It is complicated by the fact that there are limited choices available today for reducing your GHG emission at scale.

First off, we have biofuels. Our company used over 850,000 tonnes of biofuels in up to 47% blends last year, and we hope to continue to use those, but we need some government support frankly for that to continue to be viable. Biofuels are a solution but there is limited availability and a lot of competition, so the market cost is very challenging.

Then there is LNG, a viable energy transition solution, but fossil-based LNG has real limitations when it comes to long-term GHG reductions; the gains are too modest. But I believe there are gains in the CO_2 equivalent reductions, even considering the whole lifecycle, to be had today. The key is, how soon can we migrate to bio- and synthetic LNG. Synthetic LNG as well as bio-LNG also functions as a 'drop-in' fuel and can be transported, stored, and bunkered using existing infrastructure. Our planning takes into account the extent to which supply chains can provide those bio and synthetic LNG alternatives.

The third is energy efficiency. The GHG reductions that the IMO, policy makers, society or even ourselves think we need to get to for shipping are impossible by the laws of physics to get to by energy efficiency alone. But the things we learn from it today and going forward will be more important for the future fuels that are in the pipeline because it can help normalise a very substantial cost differential between new and old fuels.

It will also chip away at the volumetric density challenge that most of the alternative fuels have. Liquid hydrogen for example requires about four times the volumetric space of a conventional fuel. If I can take away, say, 35% of that by scaling up fuel cells and get a major advantage in fuel efficiency compared to an internal combustion engine, then more options – such as hydrogen, ammonia or methanol - will be feasible sooner. This will help us move closer to where we need to get to, which is full decarbonisation.

While the IMO has pointed to a 50% absolute reduction of GHG emissions by 2050, it is also pointing toward full decarbonisation and I think there will be greater expectations and more pressure on that in the very near future. We have to keep our eyes on the ultimate prize, which is how do we get to a decarbonised future for shipping and society.

UE: IMO's regulatory approach is goal-based; leaving it to the market how to achieve compliance. Already we have seen that this led to different solutions for compliance with sulphur limits. With GHG reductions, the complexity and variation in solutions will probably be even greater. Is this the best way to regulate? Some might argue that it creates an uneven playing field compared to mandating specific solutions.

BD: The shipping industry thrives on certainty; it gives us some balance in our investment decisions and planning and how we negotiate with the various parties that we're in business with. Where I think goal based regulatory philosophy, in contrast to a prescriptive one, is the most effective is where the best solutions are not readily apparent, and there is a high premium to be seen in innovation. GHG reduction is a perfect example. If it was obvious what we should do then everybody would be doing it and that's where all the resources would be going. But there is not a one size fits all solution here. It depends on ship type, size, age and where they are deployed relative to potential decarbonised fuel sources. Also, I think it would be a grave mistake to stifle creativity on things we haven't really seriously considered before.

At MSC, we are working on a developmental class for sail-powered cruise ships for example, and there is talk of doing it on cargo ships by some shipowners. As a life-long competitive sailor I think that is great! It would be a real mistake not to explore it, and I also think it would be a real mistake to foreclose another area I have a background in, nuclear power. I started my career as a naval nuclear engineer and while I don't see those applications – pressurised water reactors – as suitable for commercial shipping, there is talk now about molten salt reactors or even fusion technology, and those deserve a fresh look. If we have regulations that are too prescriptive now, for the benefit of having certainty, I think we run the risk of charging down a corridor that could be a dead end for some, or even all of the industry if we're wrong. I'm not talking here about the risk of getting investment decisions wrong, I'm talking here about the risk to the climate. We cannot afford to all be wrong so I think we need to diversify, open our minds, be creative and not be bound to conventional notions of what a ship looks like or how it must be powered. Maybe the best solutions will come from outside our sector. This is why I think a goal-based philosophy will serve us best, despite the complexity.

UE: Potential GHG reduction solutions for shipping we have heard about include bio-based liquid fuels such as biodiesel, bio-LNG, bio-methanol, we hear a lot about hydrogen and ammonia, the use of renewables and batteries, carbon capture and even nuclear power. Are they all on the table or should we rule anything out?


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BD: We have not ruled out any particular molecules or methods of fuel being converted into energy that we can use on a ship. We are looking very closely at fuel flexibility because of the uncertainty about what might be the most promising path. Making the right capex up front, and establishing the right relationship with energy providers so we might be able to pivot towards a different fuel throughout the lifetime of the ship is important.

In our case, we are open to a wide range of solutions but we have started to rule out some of the sources for some of those fuels. For example, grey hydrogen won't work for us, we think it needs to be green. All hydrogen is not created equal, and that creation step of the lifecycle is important. The same can be said for methanol. You gain very little by using conventionally produced methanol available in the market today, but if you get to a green source, whether it is bio or synthetic, that's a very different ballgame.

The source does matter for these types of fuels and those that really provide the right net benefit to the environment overall are those that hold the greatest promise. Hopefully the regulations will evolve to accommodate those kinds of choices, because that really matters.

UE: The IMO is looking at lifecycle assessment guidelines as part of the regulatory package, how far away do you think we are from that becoming part of the regulatory framework at the IMO?

BD: It can't happen soon enough! As mentioned, we used a large volume of biofuels last year but the regulations today are incapable of reflecting any credit for that so I think the work that has begun at the IMO is really important, not only that it is done quickly but also in the right way using the right assumptions so it is possible to have re-evaluations. For example, we have seen really substantial improvements in the ability of engine manufacturers to reduce methane slip from LNG fuel systems over the last few years, so that tank to wake methane slip picture is changing as is the upstream element. Then with ammonia, it is really hard to get a handle on what nitrous oxide slip looks like without much

more data than we have now. We need to be able to make the best estimates we can now, but to be able to accurately and properly re-evaluate them over time.

UE: We have seen a package of European Union proposals called 'Fit for 55' which are intended to help promote the uptake of low carbon alternative fuels across all sectors, including shipping. Do you think they will help speed up that process?

BD: I think they will, but I think the package will benefit a lot from a meaningful consultation process where I hope the end users of these fuels will be taken into account as I think there is some work to be done, if nothing else to harmonise bits and pieces which do not seem to be in sync with each other. But I think that what they are trying to accomplish is what we should all be trying to accomplish and I hope that we can do this collaboratively and help that package ultimately reach its potential toward decarbonisation. But there's some fine tuning that needs to be done, and also some inequities between various sectors that need to be sorted out.

UE: I don't think anybody can argue with the aims and ambitions of the EU package of proposals, but the how is up for debate. There are also many who are very opposed to the EU moving ahead unilaterally. Do you think the EU proposals can accelerate the work at the IMO, will it be a help or a hindrance? Is it too piecemeal or can it serve as an experimental ground for the IMO to see how to move forward?

BD: This question invites equally reasonable arguments on either side, I can answer this either way!

Let me just take one piece of it, the emission trading system (EU ETS). I think that will be more of a hindrance than a facilitator towards a global market-based measure (MBM), which is a solution we need to seek. If you look at even the most generous scope of the EU MRV which is the dataset that will be taken into account, you are talking about something below 20% of overall global GHG emissions. And for these gaseous emissions, we need to recall that it doesn't matter where it is emitted, it has the same global impact on climate change.

I think this poses a challenge where some developing countries, for their own policy-reasons, will not want something imposed on them by a group of 27 member states rather than a decision made by a majority of IMO member states. I would have liked to have seen a collaborative solution come out earlier and I am disappointed that this has not yet happened at the IMO.

The other side of that coin is that with a MBM model in place, they have something to argue around and use as an example and try to get others to emulate through the IMO, but just how that will be received by the bulk of IMO member states, I don't know, but I am concerned that it will be a hindrance. I am also concerned there may be reciprocal actions of what ultimately looks and feels like a tax on trade, taken by other countries acting unilaterally.

I am not just concerned about that particular EU regulation, but also the IMO's ability to regulate going forward if such a big package of measures on something this important is taken completely outside the organization, with the idea that maybe it can be imported later. I think this is risky when you also consider the value the IMO can add world wide on a range of environmental protection matters, not to mention safety and the other aspects that they are so good at making technical standards for. I hope the European Commission in particular, who understands how to work at the IMO, will try very hard to reintegrate this work within the body of work at the IMO.

UE: I think we can all agree that collaboration between various stakeholders is essential to succeed in the energy transition, to help us identify technically sound and sustainable solutions and to get past the old 'chicken and egg' conundrum regarding supply and demand for specific fuel types. How is MSC approaching this? Are you participating in R&D projects, for example, and have you engaged in discussions with suppliers for your future energy needs?



©MSC

BD: We are, and on many different levels. Sometimes just informally like working with an OEM we have a good relationship with to modify equipment and test out new ideas. Sometimes it's more holistic like our hydrogen project where there are multiple partners involved. Sometimes it is outside public funding streams and sometimes inside public funding streams. For example, we have a collaborative project with many stakeholders called "Project Check" which is partially funded through the EU and we're hoping that it will lead to some technological changes that can be a benefit to the whole community, not just one company.

We have also formalised a strategic partnership with Shell, a major energy provider for us, and we're working together on a whole range of decarbonisation solutions. We are looking at energy efficiency, flexibility in design and what may be the most promising alternative fuel options for us going forward, and how can we make sure that we have established the relationships that we need to get our supply, because we are going to have to compete for those fuels with other users. This partnership is just one example of many that we are active participants of and we believe partnerships are key in accelerating the decarbonisation of shipping.

In my opinion, no one company and no one sector within shipping, or even shipping in its entirety, could possibly solve these decarbonisation challenges on their own. It really takes a collaborative effort between the upstream side producing fuels, equipment makers, governments, academia, and actual owners and operators of ships. We have to stay positive about this! We have to believe that we're going to get there, that we're going to stand for something and that we're going to do it together.

UE: One thing is almost guaranteed: reducing GHG emissions will come at a price. Alternative fuels tend to cost more than fossil fuels and the technology costs more. It is difficult to ween not just the shipping industry, but the world at large, off fossil fuels as long as it is the cheapest solution.

With IMO 2020, we saw that shipowners put off buying compliant fuels for as long as possible, meaning we had a very short and sharp transition period. How do we overcome this when it comes to reducing GHG emissions, which will need a longer transition period?

BD: I think there is a huge difference between complying with the 2020 regulations and decarbonisation because in its purest form, there was a solution available for 2020 even back in 2008 when the regulations were written; namely distillate fuels. There was an obvious technical solution available; it was just going to be expensive and sufficient supply was a question.

This isn't like that. We don't know what the most successful solutions are going to look like. We saw a binary change, almost overnight, for IMO 2020. It cannot happen like that with this, it needs to be an energy transition with more of a gradual progression. Even if we get zero carbon emission ships tomorrow, there are still conventionally fuelled ships being delivered today. It will take time for the regulations not only taking effect, but having effect. This is a gradual curve, we cannot wait until last second to implement the emission reducing targets; it would be impossible.

UE: The cost of this transition will be borne by ship owners and operators; and although it will be passed on to the consumer, we know shipping is very competitive and whoever has the lowest cost has an advantage. That makes it difficult to push forward the necessary energy solutions. Do you see regulations having a major role to play in making this happen?

BD: Regulations aren't the only thing driving this. Our internal corporate ethos of where we want to get to, and what our customers want – both of those things matter a lot.

But this is a time when regulatory influences will be implemented to distort the market so that it moves faster and bigger than it would on its own.

There are certain customers – not many yet but we hope to see more of them soon – that are willing to pay the premium to do this the right way, and we will be ready to meet them. There is a large segment of the customer base that is slower accept extra cost to protect the environment, so we need regulations to incentivise changes. But I keep reminding people that the majority of our customer base today is not representative of the future and future leaders, who will have grown up with prioritizing these values of reversing or at least mitigating the impact of climate change. It is very important to them; it is a different culture. This paradigm is going to shift and it has to, because we have to work together on it.

I love being a problem solver and I have never seen anything of this scale. I don't think shipping could ever face a bigger problem of such an existential nature that it has to solve. I love every day of being a part of trying to find the solutions, working with likeminded people and I am proud to be associated with a company that really does want to be a leader going into the future. It is a great community to be a part of in shipping and I know that we're going to get there, but we're only going to get there working together as a community. I really enjoy the spirit of the people I get to work with on this problem, as daunting as it is.



Bud Darr of MSC Group ©MSC

NEW MEMBERS

CORPORATE A

Bunker Supplier
Abdi Ismail Kahin
Red Sea Bunkering
Africa

Service, Supplier
Daniel Kemp
Emerson Marine Solutions
Europe

Mike Sin
Eng Hua Company (Private) Limited
Asia

Supplier, Trader
Anil Keswani
Oleo Energy Dmcc
Middle East

CORPORATE B

Oil Industry Major, Ship Owner/Charterer
Captain Rajeev Kumar
Bp Oil International Limited
Asia

Supplier, Trader
Amit Dingwani
Oleo Energy (India) Pvt Limited
Middle East

INDIVIDUAL

Service, Oil Industry Major
Ken Zhang
Maritec Pte Limited
Asia

Romaric Pagning Gad
West Coast Africa Surveys (WCAS)
Africa

Service, Supplier
Hoo Keong Victor Tay
Triton Bunker Services Pte Limited
Asia

Ship Owner
Jan Christensen
Hapag- Lloyd AG
Europe

Service
Uwadiae Oyegun
Edflo Energy Services Limited
Africa

Ship Owner
Frank Dahan
Group CSL Inc
Americas

Service, Agent
Darren Shelton
FuelTrust
Americas





FIT FOR 55: HIT OR MISS?

The European Commission's 'Fit for 55' package of 13 proposals has thousands of pages forming a complex web of measures. IBIA's Unni Einemo studied them to assess their potential impact on the marine fuels sector

The 'Fit for 55' package of proposals, announced in July 2021, is aimed at reducing the European Union's net greenhouse gas emissions by at least 55% by 2030, compared to a 1990 baseline. The European Commission's comprehensive and interconnected set of proposals contains several elements aimed specifically at reducing GHG emissions from shipping, and in particular measures to encourage uptake of less GHG-intensive marine fuels.

The far-reaching proposals need to be negotiated with the European Parliament and EU member states before they can be adopted. The Commission says many details are likely to change before the reforms are adopted.

The 'Fit for 55' package aims to apply "various complementary policy instruments" to motivate technology development and use of sustainably produced renewable and low-carbon fuels by 2030 in all sectors, including maritime, "to prepare for much more rapid change thereafter".

The proposals with most direct impact on the maritime sector and bunkering are:

- FuelEU Maritime
- EU ETS
- Energy Taxation Directive
- Regulation on the deployment of alternative fuels infrastructure

Together, these aim to stimulate uptake and supply of renewable and low-carbon fuels (RLF) for ships arriving at, and departing from European Economic Area (EEA) ports, including from countries outside the EEA.

It is clear that a lot of thought has gone into avoiding "carbon leakage" to ensure the measures will be effective and equitable, recognising that the international nature of shipping could easily cause ships to evade EU-specific fuel taxes, fees and other requirements.

Nevertheless, the proposals have the potential to disrupt the level playing field. Questions remain about how this will work in practice, whether there will be significant negative consequences for some bunker markets, and if it will be effective in reducing GHG emissions from shipping.

One thing is certain: the regulatory framework will increase complexity for shipping companies. Moreover, the proposal for documenting the GHG intensity of fuels on the bunker delivery note (BDN) needs to be understood by marine fuel suppliers not just in the EU, but globally.

The table on the opposite page summarises the key elements.

Scope of the EU proposals

Maritime transport accounts for around 75% of EU external trade and 31% of EU internal trade in terms of volume, according to the Commission. It says ship traffic to or from ports in the European Economic Area (EEA) accounts for some 11% of all EU carbon dioxide (CO_2) emissions from transport and 3-4% of total EU CO_2 emissions.

The EC proposals regarding GHG intensity and inclusion in the EU ETS applies to ships above a gross tonnage of 5000, regardless of their flag. This is in line with the EU Monitoring, Reporting and Verification Regulation (MRV) which established the system to monitor and report CO_2 emissions from ships above 5,000 gross tonnage sailing to or from ports of the EEA. Even though ships above 5,000 GT represent only approximately 55% of all ships calling at EEA ports, it is estimated that they are responsible for 90% of the CO_2 emissions from the maritime sector.

The limit on GHG intensity under the FuelEU Maritime and the EU ETS proposals will apply to energy used during a ship's stay within a port of call in the EEA, the entirety of the energy used on intra-EEA voyages, and half of the energy used on voyages arriving at or departing from EEA ports from/to other countries.



The key elements

FuelEU Maritime	EU ETS	Energy Taxation Directive (ETD)	Alternative fuels infrastructure (AFI)
Aims to incentivise uptake of renewable and low-carbon fuel (RLF) by setting increasingly strict limits on the GHG intensity of fuels used from 2025 onwards for ships pf 5,000 GT and above. GHG intensity of alternative fuels to be certified and BDN to show lifecycle GHG emission factor.	Ships of 5,000 GT and above to be included in the EU ETS from 2023. Applicable to all intra-EEA voyages and 50% of voyages to/from countries outside the EEA. Ships will have to buy CO_2 allowances, starting at 20% of emissions in 2023, rising to 45% in 2024, 70% in 2025 and 100% in 2026.	Remove tax exemption on bunker fuels sold within and for use within the EEA from 2023. Low rate compared to other sectors to prevent carbon leakage. Minimum tax rates: HFO/MGO €0.9 per GJ from 2023 (approx. €38/$45 pmt) LNG/ LPG €0.6 from 2023, rising to €0.9 in 2033	Sets requirements for adequate LNG bunkering infrastructure at core ports by 2025, and minimum electric shoreside power supply for container and passenger ships by 2030. Member States to submit deployment plans for alternative fuels infrastructure.

It is worth noting that the EU MRV contains methods for calculating CO_2 emissions which rely on applying CO_2 emission factors to data on fuel consumption. The MRV already contains default values for emission factors of fuels other than the traditional liquid marine fuels (such as Liquefied Petroleum Gas, LNG, methanol and ethanol) and it provides that *"appropriate emission factors shall be applied for biofuels, alternative non-fossil fuels and other fuels for which no default values are specified".*

Regarding the provision of LNG bunkering infrastructure, the Commission says it is likely that 71 out of 90 TEN-T core ports will have LNG bunkering available by 2025, which ensures that the objective is met.

From January 2030, containerships and passenger ships at EEA ports will have to connect to onshore power supply (OPS) and "use it for all energy needs while at berth" to prevent local air pollution, unless they can demonstrate the same emission reduction by means of an alternative technology, such as batteries.

There is also a requirement for Member States to submit, by 2024, a deployment plan for alternative fuels (other than LNG) infrastructure in maritime ports, in particular for hydrogen, ammonia and electricity. Unlike for LNG and OPS, there is no minimum requirement.

Taxing marine fuels

Globally, marine fuels are typically exempt from duty when sold to ships for international use; while fuels for domestic use are subject to duties set by individual countries. The proposal put forward by the Commission intends to remove tax exemptions on aviation and marine fuels by updating the EU Energy Taxation Directive (EDT).

Starting in 2023, it would impose a minimum tax rate for heavy fuel oil and marine gasoil (HFO/MGO) as well as LNG/ LPG while "sustainable and alternative fuels" would benefit from zero tax rates in the first 10 years.

The taxes would apply to marine fuels sold and used within the EEA. According to the modelling done for the impact assessment, intra-EU transport will represent approximately 16% of all fuel use in the waterborne transport sector in 2030.

Member States would retain their freedom to exempt fuels sold for use beyond the EEA, or apply the same level of tax as they do for intra-EEA navigation.

The proposal indicates that, to be entitled to tax-free bunkering in the EEA, vessels would have to prove eligibility for tax-free bunkering by producing the relevant customs documents indicating the next port of call that is located outside the EEA.

The proposed tax on marine fuels in the EU EDT is just 12% of what other sectors that use fossil fuels will be charged. The Commission says this is in recognition of the carbon leakage risk, as ships operating internationally can easily take enough fuels outside the EEA to cover their needs while navigating between EEA ports.

Approximate conversion factors say one tonne of HFO equals around 42 GJ, which would put the tax on HFO sold and used in the EEA at almost €38 per tonne, or $45 per tonne at current exchange rates. That price difference would make bunker prices in EEA ports less competitive with other options, potentially eliminating current price advantages of taking bunkers in EEA ports. Moreover, this could make it attractive for ships operating chiefly within the EEA to visit nearby non-EEA ports to take bunkers if the price difference favours it. Ports close to EEA waters offering a competitive bunker-only option might benefit.

However, bearing in mind that most ship operators prefer to lift bunkers concurrent with cargo operations, and deviations are costly, the incentive for EEA operators to look outside their normal bunkering ports will be limited. And as long as bunker sales to ships on international journeys remain exempt, those sales should not be affected. Unlike the other parts of the "Fit for 55" package, this will not be negotiated with the European Parliament; it requires all Member States to agree for a new EU ETD to enter into force. Unanimous agreement might prove difficult.

FuelEU Maritime proposal

This is a new GHG policy concept that sets a limit on the overall lifecycle GHG intensity of fuels used. The policy is intended to overcome the "chicken and egg" obstacle

for wider market penetration of renewable and low-carbon fuels (RLF) for shipping. It may work in a similar way as we have seen with both regional and global marine fuel sulphur limits, gradually introducing new demands on both users and suppliers of marine energy, resulting in reduced emissions over time.

Unlike the 2030 target in the IMO's initial GHG strategy, which sets a 40% reduction target for carbon intensity of international maritime transport (CO_2 emissions per transport work), the FuelEU Maritime proposal sets increasingly strict limits on the carbon intensity of the fuel itself, on a well-to-wake basis. The proposal says the limit should be expressed in terms of 'CO_2 equivalent (CO_2e)' in order to reflect the global warming potential of methane and nitrous oxides as well as CO_2.

This regulation would require the yearly average GHG intensity of the energy used on-board by a ship to be reduced every five years compared to a 2020 reference value, starting with a 2% reduction from 1 January 2025, and 6% from 1 January 2030. The GHG intensity reduction requirement is then envisaged to be reduced further every five years by 13%; 26% and 59%, culminating with a 75% reduction from 1 January 2050.

While departing from the IMO's regulatory approach in reducing the carbon intensity of maritime transport, the proposal is similar in that it is goal-based and technologically neutral; it does not prescribe any particular fuel or technology.

A key concern about these proposals is the complexity it would introduce for both users and suppliers of marine energy in order to prove and certify the full well to wake GHG lifecycle emissions of alternative non-fossil fuels.

Responsibilities and impact

The responsibility for complying with the new regulation will be with shipping companies. This would extend the reporting requirement of annual CO_2 equivalent emissions under the EU MRV regulation, using accredited verifiers to ensure the accuracy and completeness of the monitoring and reporting by companies.

An important element of the proposal is the option to pool ships from different companies, provided ships in the pool are verified by the same verifier. This allows for 'over-achievers' within the pool to voluntary exchange "excess compliance points" with less performant ships/operators, provided that the minimum targets are met on average.

CO_2e factors for tank to wake (TtW) emissions of various fuels are provided in an annex to the proposal. For fossil fuels, these are the same as in the MRV Regulation. Emission factors are given for other fuels, such as bio liquids, bio-gases and e-Fuels. There is an option for the TtW values to be certified by laboratory testing or direct emissions measurements.

The method for determining well to tank (WtT) GHG factors for non-fossil fuels, meanwhile, are more complex. These could be "default values" based on Directive (EU) 2018/2001 – the Renewable Energy Directive (RED II).

Certification of fuels is essential to achieve the objectives and guarantee the environmental integrity of the renewable and low-carbon fuels that are expected to be deployed in the maritime sector. The proposal says the certification of biofuels, biogas, renewable fuels of non-biological origin and recycled carbon fuel should rely on the rules established by RED II, and that this approach of certification should also apply to fuels bunkered outside the Union.

CO_{2eq} values as provided in RED II (without combustion) can be used for all fuels whose pathways are included in RED II. Alternatively, a RED II approved certification scheme can be used for WtT emissions.



Wherever values for non-fossil fuels are used that are different from the default values established in RED II, it says these "shall be based on relevant Bunker Delivery Notes (BDNs)".

This is where the regulation has the potential to impact marine fuel suppliers globally, as it states:

For the purposes of this regulation, relevant BDNs of fuels used on board shall contain at least the following information:

– product identification
– fuel mass [t]
– fuel volume [m^3]
– fuel density [kg/m^3]
– WtT GHG emission factor for CO_2 (carbon factor) [gCO_2/gFuel] and for CO_{2eq} [gCO_{2eq}/gFuel] and related certificate.
– Lower Calorific Value [MJ/g]

A footnote says the WtT GHG value is not required in case of fossil fuels. However, for all other fuels, including blends of fossil fuels (presumably this alludes to blends of fossil fuels with non-fossil fuels), this value should be made available together with a separate certificate identifying the fuel production pathway.

It seems that any marine fuel supplier anywhere in the world that wants to be able to provide renewable or low-carbon fuels for ships heading to a port covered by the EU regulation would need to provide this information in the BDN, along with a separate certificate identifying the fuel production pathway.

Certifying the WtT CO_2e value and the production pathway could be very complex, as it is quite likely that new alternative fuels – just like today's oil-based fuels – will be blends of components from different producers and production methods.

Shipping industry representatives have objected to the FuelEU approach because it puts the onus on shipping companies comply and to source compliant fuels; arguing that requirement should be put on marine fuel suppliers to make renewable and low carbon fuels available. While this is entirely understandable, the Commission's proposal makes it clear that it has placed the responsibility on the energy consumers in order to create demand which might otherwise not materialise.

There is a parallel here to sulphur limits; it has always been up to ships to comply. There is no obligation on suppliers to provide low sulphur fuels, only to meet the required sulphur limit if they choose to provide such fuels. Whenever regulations have caused market demand for low-sulphur fuels to increase, the supply side has responded.

Another criticism levelled at the FuelEU proposals is potential overreliance on biofuels, which can have questionable sustainability credentials. Biofuels are currently the only fuels that can be used without major adjustments to the fuel systems on ships using conventional fuels, which is still the vast majority of the global fleet.

Analysis of the proposal has identified two mechanisms that appear to address this issue.

One is criteria to ensure that biofuels and biogas that are produced from food and feed crops, as well as renewable fuels of non-biological origin and recycled carbon fuels that do not comply with GHG emission savings set out in RED II "shall be considered to have the same emission factors as the least favourable fossil fuel pathway for this type of fuels". How this is certified is reliant on methodology determined by the EU. Exactly how to certify fuels that are sold outside the EU is not very clear.

Another aspect that can counterbalance overreliance on liquid biofuels is the pooling option; this could make ships using certified low GHG intensity alternative fuels very attractive as pool partners for shipping companies that struggle to meet the GHG intensity limit.

The question does remain, however, just how effective the proposal can be in promoting more demand – and hence supply – of truly sustainable low GHG intensity fuels, at least in the first five to 10 years. The initial 2% and then 6% GHG intensity improvement requirement may, at best, help establish a niche market for alternative fuels, most likely in Europe, and help reward early movers by taking part in the pooling mechanism. Indeed, this may be a good incentive and offer some early return on investment for those operators who undertake trials to gain experience with alternative fuels like ammonia.

EU ETS impact

There are two main potential impacts on the marine fuels market from extending the EU ETS to maritime transport; one being the extent to which this price signal incentivises uptake of alternative low-carbon fuels, and the other the extent to which it causes ships to change their trading patterns to reduce their exposure to the EU ETS. Both will depend on the carbon price, which would need to be relatively high to have a significant impact. The Commission says this proposal forms part of the package of measures to create a clear price signal that would make energy efficiency investments more cost-effective, encouraging ships to use less fuels. It would also reduce the price differential between alternative fuels and traditional marine fuels and hence support their deployment. As such, this would reinforce the goals of the FuelEU Maritime initiative.

The projections for carbon prices in the EU ETS assessment of around €45-55/tCO_2 between 2023 and 2030 would have a very limited ability to stimulate uptake of alternative fuels, bearing in mind that moving to alternative fuels is not just about bridging the price gap with fossil fuels. Availability, technical feasibility of alternative fuels, regulatory safety standards and the level of investments needed to use them are also major factors. Only ships with dual fuel or multi-fuel engines and fuel systems can readily switch between traditional liquid oil-based fuels and other fuel types such as bio-LNG or sustainably produced methanol, for example. The lowest technical barrier would be for liquid biofuels and biofuel blends.

The ETS could potentially cause changes in trading patterns, for example making it attractive to use non-EU ports as transhipment centres for ships above the 5,000 GT threshold and use ships below



the 5,000 GT threshold for the EU ETS for onward transport into EEA ports. Moreover, if ships above 5,000 GT were used for onward cargo transport from transhipment ports close to EEA destinations, it would reduce the length of the voyage they would need to buy ETS allowances for.

The EU maritime transport MRV regulation requires ships to load or unload cargo in order for the stop to fall under the port call definition. This stringent definition represents an important additional barrier to evasion and could be strengthened to further mitigate the risk.

The above requirement would prevent 'bunker only calls' being counted as a port call, so that stopping for bunkers only en route between the Far East and Europe, for example, would not allow the ship to cut the share of fuel (50% of the total from the last port outside the EEA) that would be subject to the EU ETS.

The EU ETS proposal has assessed the potential for evasion, which becomes lucrative when the cost of compliance exceeds the costs associated with the evasive port call (i.e. additional port, fuel, operational, administrative and opportunity costs). Exactly what carbon price level this may occur at is not certain, and will depend on the type of cargo, but the ETS could potentially cause both near and longer-term changes in trading patterns and hence which ports ships find most cost-effective for lifting bunkers.

The Commission notes that the risk of evasion would be cancelled if the main departure or arrival countries outside the EEA would apply similar carbon pricing policies. One might argue – and many do - that a global carbon pricing policy adopted through the International Maritime Organization is the answer.

Many questions

Apart from the questions and uncertainties identified above, the EU proposals raise several other questions, including:

- *Are the EU standards for measuring lifecycle GHG intensity the right ones, and can they be adopted globally?*
- *Will it send the right signals to achieve a long-term shift to truly sustainable forms of energy?*
- *Will it lead to quicker decarbonisation of international shipping than already adopted IMO instruments?*
- *Will it hinder or accelerate progress on further GHG reduction measures at the IMO?*
- *Will IMO safety regulations and commercial fuel quality standards be developed in time to ensure that alternative fuels and energy sources are safe and fit for purpose?*

The answer to many of these questions will be coloured by opinions, some will be predictions, while some should be clarified in the process and negotiations that lie ahead before any of the proposals are adopted. The Commission has said that many details are likely to change before the reforms are adopted.

In summary, IBIA sees many unanswered questions regarding the impact of the proposals. We will invite our members to share views and concerns about the "Fit for 55" proposals to gauge their potential impact and appropriate responses, and engage on this matter accordingly.

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A MILESTONE FOR SHIP PROPULSION

IBIA's IMO Representative Unni Einemo guides you through key developments from IMO meetings IBIA attended over the past few months

In the previous issue of *World Bunkering*, we gave you a detailed report on the current status of an agenda item called "Development of further measures to enhance the safety of ships relating to the use of oil fuel", which is dealt with by the IMO's Maritime Safety Committee (MSC). Since then, a number of IMO meetings have taken place dealing with subjects that – directly or indirectly – have an impact on IBIA's members. We have been there to contribute to discussions and monitor developments. Let's bring you up to speed on relevant items from the following meetings taking place during June, July, August and September:

- Marine Environment Protection Committee (MEPC 76)
- Sub-Committee on Implementation of IMO Instruments (III 7)
- Legal Committee (LEG 108)
- Facilitation Committee (FAL 45)
- Sub-Committee on Carriage of Cargoes and Containers (CCC 7)

Ship propulsion milestone

It takes power to move a ship. For centuries they relied mainly on harnessing wind but at the end of the 18th century the first steam ships appeared. The first diesel-powered ships using internal combustion engines appeared more than 100 years later, early in the 20th century, while the first nuclear-powered ship started service in 1959.

This puts into context how historic it was when, in mid-September this year, CCC 7 agreed draft interim guidelines for ships using fuel cell power installations, adding fuel cells to the short list of energy converters used to power ships.

It took around 10 years of discussion to develop the framework, intended to ensure the safe and reliable delivery of electrical and/or thermal energy through the use of fuel cell technology. It will be sent to the Maritime Safety Committee (MSC) for approval at its 105th session in April 2022.

A fuel cell works like a battery, but one that does not run out: it produces electricity and heat as long as fuel is supplied. According to the Hydrogen and Fuel Cell Technologies Office, part of the US Department of Energy, fuel cells can operate at higher efficiencies than combustion engines and can convert the chemical energy in the fuel directly to electrical energy with efficiencies capable of exceeding 60%. Fuel cells can use a wide range of fuels and feedstocks, and they have lower emissions compared to combustion engines. If running on hydrogen, the only products are electricity, water, and heat, meaning zero emissions.

This makes their attraction apparent in the drive to find new fuels and propulsion systems that can help shipping reduce harmful emissions; both air pollutants like sulphur and nitrous oxides, and CO_2.

So, can we expect a rush of ships being converted, or built, to use fuel cells powered by hydrogen now? Maybe not just yet, as there are cost and technical barriers to overcome. So far, fuel cells have been deemed suitable mainly for auxiliary power rather than propulsion for ocean-going ships.

Then there is the question of fuel safety. We have well-established safety provisions for marine diesel fuels and LNG, and interim IMO guidelines for the use of methanol – all of which are potential fuels for fuel cells. But IMO safety provisions for ships to use hydrogen, or ammonia as a hydrogen carrier, have yet to be developed. This was also discussed at CCC 7.

Safety provisions for new fuels

CCC has an ongoing agenda item on the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code). The IGF Code initially focused on

liquefied natural gas (LNG), but work is underway to add specific provisions for other fuel types. Interim guidelines for the safety of ships using methyl/ethyl alcohol (which includes methanol) were approved by the MSC in 2020.

Since completing the interim guidelines for methanol, CCC and its correspondence group on the IGF Code have been working on development of general safety provisions for ships to use fuel cell power installations, low-flashpoint oil fuels and liquefied petroleum gas (LPG).
At CCC 7, after completing the interim fuel cell guidelines, it was agreed that the correspondence group should consider how best to proceed with the development of draft amendments to the IGF Code to address safety provisions for ships using low-flashpoint oil fuels; continue to develop interim guidelines to address safety provisions for ships using LPG fuels; initiate the development of guidelines for the safety of ships using hydrogen as fuel, and collect information on the safe use of ammonia as fuel.



Safety provisions needed for ammonia as fuel ©iStock

Regarding ammonia, IBIA and others told CCC 7 that ammonia is not a low-flashpoint fuel and hence this work may not fall under the scope of the IGF Code. A decision on how this work will be taken forward should be made by MSC 104 in October, which is due to consider a proposal to develop non-mandatory guidelines for the safety of ships using ammonia as fuel.

During CCC 7, there were moves to push the development of draft amendments to the IGF Code to address the safety provisions for ships using low-flashpoint oil fuels to the back of the queue, or even off the agenda. Products with flashpoint below 60°C are considered as low-flashpoint fuels. In this context, IBIA reminded CCC 7 that there are good reasons to continue this work.

"We fully appreciate the urgency of developing safety provisions to enable the timely uptake of alternative fuels aimed at reducing GHG emissions from shipping. Some of those options will include e-diesel and bio-derived diesel fuels, and we will likely see increasing production and use of such fuels, either on their own or in blends with oil-based fuel, already a well-established practice in land transportation.

"To ensure adequate supply in the future, considering the unprecedent transition in fuel type production, it would be wise to extend this work to encompass not just the current conventional fossil based low-flash oil fuels, but also e-diesel and bio-derived fuels which are similar in nature, and may also have flash point below 60°C," IBIA told CCC 7.

Another delegation made a similar comment, adding that the safe use of low flashpoint oil fuels could be ensured by the IGF Code due to its moderate hazard profile, providing access to a liquid fuel with high energy density, which in future could be used in the synthetic climate neutral e-fuel version.

It remains to be seen how these points will be taken into account when work resumes in the IGF Code correspondence group.

GHG focus at MEPC 76

Detailed reports on various outcomes (or lack of outcomes) are available on the IBIA website, so we'll keep this brief. Suffice to say, with virtual meetings still being limited to three hours a day, there was little room for the six-day session - despite working overtime - to make progress beyond reaching a key step on the IMO's strategy for reducing greenhouse gases from international shipping.

That step was the introduction of new mandatory measures: The Energy Efficiency Existing Ship Index (EEXI) relating to how the ship is equipped and retrofitted, an operational carbon intensity indicator (CII) and a CII rating system. They are intended to reduce carbon intensity of international shipping by 40% by 2030, compared to 2008.

The relevant amendments to MARPOL Annex VI are expected to enter into force on 1 November 2022, with the requirements for EEXI and CII certification coming into effect from 1 January 2023. MEPC 76 also adopted guidelines supporting EEXI and operational carbon intensity reduction measures. These were hotly contested, and more work will be required in years to come to meet the IMO's stated GHG reduction targets.

MEPC 76 had inconclusive talks on two different proposals aimed, respectively, at funding research into low-carbon alternatives and incentivising a move away from fossil fuels.

The meeting discussed, briefly, a revised proposal for an International Maritime Research and Development Board (IMRD). This was first put forward by a group of shipping organisations at MEPC 75. The key part of the proposal is a mandatory R&D contribution equivalent to $2 per tonne of fuel oil consumed to fund and accelerate R&D of low and zero-carbon technologies. Although the revised version addressed many of the concerns raised at that time, and was now co-sponsored by several member States, it soon became clear that it would be impossible to conclude debate on this item at MEPC 76. There were divergent views, including concerns regarding allocation of money, governance structure, and associated impact assessments. Further discussion was suspended until MEPC 77.



Funding sought to accelerate low & zero-carbon solutions ©iStock

After the curtailed discussion on the R&D proposal, MEPC 76 held initial discussions about an actual market-based measure (MBM), namely the much-publicised proposal for a mandatory levy of $100 per tonne carbon dioxide equivalent on heavy fuel oil from 2025, as a starting point. This is intended to incentivise the move away from business-as-usual fossil fuels to low and zero-carbon alternatives.
Once again discussions showed divergent views, with concerns raised about impact on states, the size of the levy, distribution of funds and other elements, but there was also considerable support. Further discussions on the proposal, as well as further submissions on MBMs, have been invited for MEPC 77.

With discussion on the R&D proposal and MBMs proving inconclusive, MEPC 76 turned its attention to a number of submissions on how to progress the next stages of IMO's work to cut GHG emissions from ships. After long discussions, MEPC 76 adopted a work plan. Much of this work will happen between MEPC meetings through intersessional working groups (ISWG-GHG) and correspondence groups, not to mention research and negotiations between Member States and NGOs with consultative status at the IMO.

Arctic HFO ban will affect VLSFO

A prohibition on the use and carriage for use as fuel of heavy fuel oil (HFO) by ships in Arctic waters was formally adopted at MEPC 76 through amendments to MARPOL Annex I. It is set to enter into force on 1 November 2022, and take effect on 1 July, 2024.

There are, however, exemptions for ships with fuel tanks protected by double hulls, and waivers for ships flying the flag of countries with a coastline bordering on Arctic, that will allow these ships to continue carry HFO for use until 1 July, 2029.

According to the regulation, the HFO ban will apply to products with a density at 15°C above 900 kg/m3 or a kinematic viscosity at 50°C above 180 cSt.

Earlier this year, IBIA analysed a set of fuel testing data covering the period from the start of 2019 up to the end of February 2021 and found that 95% of very low sulphur fuel oil (VLSFO) samples would be classified as HFO as they exceeded the density limit in the HFO definition.

This means the majority of maximum 0.50% VLSFO blends seen in the market so far would be affected by the HFO use and carriage ban.



HFO use and carriage ban coming in the Arctic © iStock

Indicative example of bunker supply licence

MEPC 76 approved an indicative example of a licence for fuel oil supply, which has been added as annex to the Guidance for best practice for Member State/coastal State (MEPC.1/Circ.884).

It followed detailed discussions in a Correspondence Group (CG) to instructed to "review and amend, as appropriate, the indicative example of a licence for fuel oil supply" provided in a proposal by a group of shipping organisations to MEPC 75. IBIA was active in the CG to help make the indicative example as relevant as possible. Many of our proposed improvements were taken onboard and are reflected in the final version that was approved at MEPC 76.

The indicative example is intended as a base document which IMO Member States might adopt voluntarily. It was made clear during MEPC 76 that it is a non-mandatory guidance document.

Scrubbers and Black Carbon

According to the agenda for MEPC 76, the Committee was due to discuss final comments relating to new draft guidelines for exhaust gas cleaning systems (EGCS, or scrubbers), and guidance on how to deal with temporary EGCS monitoring and system malfunctions.

The draft 2020 EGCS Guidelines, updating the 2015 EGCS Guidelines, were finalised at the Sub-Committee on Pollution Prevention and Response (PPR 7) in February 2020 and were due for approval at the 75th session of MEPC in the spring of 2020. However, this was deferred for a second time as the IMO struggles with limited meeting hours.

A number of proposals regarding the title and scope of a new agenda item concerning discharge water from exhaust gas cleaning systems were also up for consideration. This IMO work output has been driven by concerns about the environmental impact of discharges from scrubber systems. It is controversial as there are calls for banning or phasing out open-loop scrubber systems. Studies into the impacts of EGCS discharges have not helped settle the subject as they have diverging conclusions.

Another agenda item that was deferred for the second time was discussions about reducing the impact on the Arctic of Black Carbon emissions from international shipping. Submissions both to MEPC 75, including a paper submitted by IPIECA and IBIA, and further submission to MEPC 76 were due to be considered, following up on deliberations at PPR 8 earlier this year. IBIA has participated actively in these discussions and supports promoting voluntary measures to reduce black carbon emissions in the Artic.

Lack of clarity on sulphur limit enforcement

IBIA submitted a paper, co-sponsored by Jamaica, to III 7, which met in July. The primary aim was to protect ships from unreasonable debunkering demands, as there is confusion about on which grounds that may happen. Our submission urged member states to implement the amended sulphur verification procedures in appendix VI of MARPOL Annex VI, adopted by MEPC 75, to ensure consistent implementation of the 0.50% sulphur limit.

Appendix VI provides two distinctly different procedures: Part 1 for the MARPOL delivered sample and Part 2 for in-use and onboard samples. Part 2 of the verification procedure for in-use and onboard sample takes into account the inherent uncertainty


Confusing signals © iStock

of the sulphur test method by recognising samples as having met the regulatory requirement as long as the test result does not exceed the limit +0.59R – also known as the 95% confidence interval.

If those procedures were always followed, we would have clarity. However, there have been cases where ships have been required to debunker after reporting to authorities that they have received a test result from their own fuel oil testing programme against ISO 8217 parameters, on the ship's own sample, indicating a sulphur content marginally above 0.50%. There have also been reports of authorities obtaining and testing in-use samples from ships and treating it as a non-compliant on the basis of a single test result above 0.50% sulphur, but within the 95% confidence interval, for example 0.51% or 0.52% sulphur.

For these reasons, our submission asked for assurance that port state control (PSC) authorities, if seeking to verify compliance with the 0.50% sulphur limit and the associated carriage ban, would follow the sulphur verification procedure in appendix VI adopted by MEPC 75.

Debunkering should only be required when it has been established, beyond reasonable doubt, that a ship is carrying fuel oil that exceeds the 0.50% sulphur limit. This is why we also sought recognition that the 95% confidence principle should apply to fuel oil used and carried for use if, for any reason, an authority seeks to assess the ship's compliance on the basis of a MARPOL delivered sample only, without obtaining an in-use or onboard sample to verify the ship's compliance. This would provide the ship with the benefit of doubt against what remains a fairly arbitrary outcome, because a fuel which does in fact meet the limit may test marginally above that limit (as per 0.59R or 95% confidence limits).

However, we stressed that if the MARPOL delivered sample is above 0.50% sulphur, the fuel oil supplier would still be considered as not having met the requirement for the fuel as delivered and could face enforcement action. The supplier does not get the "benefit of doubt" and therefore needs to use the limit minus 0.59R as the blend target to be 95% certain that a single laboratory won't return an analysis result that is fractionally above the limit. For a 0.50% sulphur limit, this means the supplier's blend target must be 0.47% sulphur or less.

When the document was discussed at III 7, some delegations were of the opinion that asking for the outcome of testing a MARPOL delivered sample – in the case of the ship only – to be viewed in the same way as if an in-use or onboard sample had been tested, would interfere with the decisions made by MEPC on this issue and would lead to the use of fuels with 0.53% sulphur.

When IBIA pressed for clarity on the legal question as to what basis PSC might take enforcement action against the ship, the view was that this was not under the purview of the III Sub-Committee.

We are disappointed that we could not get the legal certainty we were seeking. Ideally, there should be legal certainty that PSC must verify the ship's non-compliance on the basis of obtaining and testing and in-use or onboard sample.

While this uncertainty is not helpful for the industry, there are some positives. When speaking to member states about the issue prior to III 7, we found that many were supportive of the principle that debunkering should only be required when it has been established, beyond reasonable doubt, that a ship is carrying fuel oil that exceeds the 0.50% sulphur limit. Moreover, while some ships have faced debunkering demands that seem poorly justified, it does not appear to be widespread.

Anti-corruption guidance

Before 2020, the Facilitation Committee (FAL) agreed to a proposal to develop IMO guidance to address bribery and corruption in the maritime sector. IBIA is a co-sponsor of this work along with several other NGOs with consultative status at the IMO, and a growing number of Member States. In June, FAL 45 agreed that the Correspondence Group on the Guidance to Address Maritime Corruption should continue this work, and encouraged Member States and international organisations to participate. IBIA will take part.

Bunker pollution claims manual

The Legal Committee (LEG 108), which met in July/August, agreed to start work on development of a Claims Manual for the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001. The intention is to have a dedicated and authoritative guidance to provide potential claimants with important information on the processes to follow before they submit claims considered as falling within the scope of the Convention. The Committee noted that delegations interested in taking this work forward on an intersessional basis could contact P & I Clubs.

SAUDI SHIPPING & MARITIME SERVICES CO. LTD (TRANSHIP)

Alex Corboude, Project Manager at World Bunkering magazine sat down with Stewart Hendry of Saudi Shipping & Maritime Services Co. Ltd to find out about their latest developments

Alex Corboude **(AC) What is the situation in the region at the moment (supply, demand, storage)?**

Stewart Hendry (SH) We naturally remain fully reliant on the availability of products from Saudi Aramco which we load from Yanbu - this is something we have done, under contractual basis, for more than 40 years and a service offering for our extensive customer base which we are very proud of.

The supply of bunker fuel products from Saudi Shipping & Maritime Services Co. Ltd continued to be offered in the Red Sea at nominated anchorage(s), as normal, by means of our existing fleet of wholly owned bunker barges

Saudi Aramco have recently announced that they are expected to use the rise in oil prices to reduce leverage and invest in increasing production capacity from 12 million barrels per day to 13 million barrels per day. This is a very bold and exciting move - more so when the various majors in the industry from the West suggest a production decline and which comes from ongoing pressure applied by investors and governments as they are further pressed to reduce emissions and apply more focus towards the investment in the renewable energy sectors.

Little concern is given towards product supply and general avails in Saudi Arabia and I feel that, whilst it is suggested that the global market could likely return to the pre-COVID level of approx 100m barrels per day by next year, we can look forward to some slightly happier times ahead.

AC: What are the core services Transhipp offers its customers and what sets you apart from the competition?

SH: 'Since joining the company in 2018, our company has continued to grow organically and diversify from the original service of physical supply of bunker products in Jeddah. Now, with multiple offices in the Kingdom of Saudi Arabia, we now offer an entire portfolio of bespoke multimodal and military Logistics, Shipping, Special Projects, Entertainment and Hospitality Events, Superyacht Management and Chartering Services services to our clients at both local and international level.

Transhipp will continue to be aligned not only with our core values and Vision 2030 of the Kingdom of Saudi Arabia, but also, equally importantly - with the needs and requirements of our highly valued customers around the world.

Whilst it remains clear that not every customer necessarily requires a single-service provider - offering such a range of diverse services in this industry sector ensures that our customers always have the option of completely open access to an entire range of services throughout the Kingdom of Saudi Arabia, wider GCC or indeed internationally. With dedicated staff allocated to business accounts, and whom have decades of industry experience, our customers can be assured of the same high level of service on time, every time - regardless of location.

AC: How did Transhipp adapt to the new business environment?

SH: Complementing our continued growth, it is normal that we have had to increase our staffing levels. Full focus has and always will be made towards Saudisation as we align ourselves with the Kingdoms Vision2030. The expansion of our business and services has allowed us to meet the requirements of customers operating in a host of different sectors such as Oil & Gas, Onshore Drilling, Specialised Projects, Air and Sea project charters, Logistics Management where we are fortunate to be supported by an excellent team of highly professional, competent and experienced individuals.

AC: What are the company plans for the near future?

SH: Despite the ongoing situation which we, like everyone else currently face, with COVID - we are excited to progress with the aforementioned expansion in terms of our footprint, as well as the services which we can offer our customers - at both local and international level. Offering an entire range of bespoke services which compliment our original bunker and marine supply operations is a natural progression for our business and we are excited to see a host of new customers support us on this journey already.

In support of this growth, we have made some key strategic staffing appointments who will help support our growth plan and indeed take our company to the next level in terms of the quality and services offered by Saudi Shipping & Maritime Services Co. Ltd.

One notable recent change we have made recently to our business structure is the internal promotion of Mr Mohsin Fakih. Mohsin joined us in November 2020, and who assumes the role of Bunkering/Branch Manager whilst holding full responsibility for all bunkering, vessel and operational aspects of our business in Jeddah.

Mohsin has an extensive Shipping, Marine, Operations and customer service background spanning more than 15 years in KSA, predominantly in Jeddah, where he had exposure in dealing with vessel owners, charterers, military logistics, dry and bulk cargo, project cargoes, Ro-Ro and of course bunkering supply operations.

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Stewart Hendry

LNG NOW MORE EXPENSIVE THAN VLSFO

Global wholesale gas prices soar but effect on shipping mainly delayed

LNG bunker spot prices in Rotterdam overtook the cost of low-sulphur fuel oil (LSFO) in early September.

According to Ship & Bunker, Rotterdam-sourced VLSFO was quoted at US$518 per tonne on 8 September compared to the spot LNG equivalent at $846 per tonne.

This meant LNG bunker prices for Rotterdam had changed from being US$130 less than VLSFO in March 2021, to costing US$328 per tonne more as of early September.

Most shipowners buying LNG as fuel are believed to have long term contracts, and are unlikely to be affected in the short term.

Reuters news agency commented that gas prices were expected to climb further during the northern hemisphere winter "when demand for LNG for heating typically surges".

Flip Dankelman, risk manager at Amsterdam-headquartered LNG marine supplier Titan LNG told Ship & Bunker: "It is important to understand that, although prices are currently very high, it will not affect the business case for LNG-fuelled vessels, as prices are expected to drop in the future,"

"The recent legislation to add shipping under the ETS gradually from 2023 is yet another factor that supports the decision to run on LNG," said Dankelman.

Meanwhile, Reuters also reported LNG carriers were restricting use of cargo burn-off as much as possible and operating on fuel oil, due to the high LNG prices.

Bunker One to supply in Mauritius

Danish-based Bunker One is starting up a physical supply operation in Port Louis, Mauritius. The company says it can now offer clients physical bunker supply on Africa's east and west coasts.

Bunker One's CEO, Peter Zachariassen, says: "We are very excited for the future of Bunker One as we broaden our physical operations in Port Louis. The collaboration between both coasts on the African continent will guarantee a dependable supply of products for the customers. We guarantee efficient deliveries and first-class operations, as we will always remain dedicated to providing our customers with services of the highest quality."

Bunker One intends to supply at Port Louis's anchorage and in the port. It has acquired the use of storage tanks owned by Vivo Energy Mauritius.

Monjasa's cargo/bunker tanker for W Africa

Oil and shipping group Monjasa has bought the 25,117 dwt, 2005-built tanker Neste, now renamed the Monjasa Trader, for use as a combined cargo and bunker vessel for its West Africa operations. She joins an existing 10-strong Monjasa regional fleet.

The company says: "In West Africa, the availability of VLSFO for the marine industry has substantially increased following the IMO 2020 transition. With its natural occurrence, these high quality products are emerging from local refineries across the region, including Angola, Nigeria, Ghana and Ivory Coast for the benefit of the global maritime trade in the area."



Anders-Østergaard-Momjasa Group-CEO ©Monjasa



Sohar port in bunkering deal ©Sohar Port

Monjasa's CEO, Anders Østergaard comments: "We are operating in an extremely competitive commodities market and we need to constantly adapt our fleet logistics to the shifting market dynamics. Before the IMO 2020 transition to low-sulphur marine fuels, we used to purchase and transport the fuel from Europe to West Africa using suezmax tankers. Today, we are sourcing much of our fuel oil products from local refineries across West Africa and for this purpose the flexi size and high specifications of Monjasa Trader makes her an ideal vessel for accessing various local loading points."

Oman bunkering deal

Muscat-based Hormuz Marine plans to supply bunkers services at Sohar Port following the signing of an agreement with Sohar Port and Freezone.

Hormuz Marine is deploying 8,000 dwt tanker, capable of delivering several grades of fuel.

Sohar harbour master Batti Al Shibli, says: "We are delighted to welcome Hormuz Marine to the Port of Sohar. Their expertise in providing an essential service will be vital to our future growth as we look to attract more vessels taking marine services and increase the cargo traffic visiting Sohar. Bunker quality is essential to maintaining efficiency and enabling vessels to meet regulations and tight timeframes. The new service is an incredibly valuable addition to the Port's one-stop-shop marine services available to all visiting ships."

Sulaiman Al Hadhrami, CEO of Hormuz Marine, adds, "Our experience in managing a crucial element of the marine supply chain will allow the Port of Sohar to increase its level of service for vessels of all sizes. We're able to deliver VLSFO, HFO, MGO and LSMGO at competitive rates to manage the fuel requirements of ships as they unload or pass through Sohar without the need to remain in port.

Vitol expands in USGC

Vitol Bunkers has added its first offshore location to its US Gulf Coast (USGC) supply offering, allowing it to supply deep draft vessels in the area for the first time.

Vitol Bunkers already operated in the US ports of Houston, New Orleans, Lower Mississippi River and at the Caribbean locations of St. Eustatius, St. Maarten, St. Kitts and St. Barth.

Vitol's offshore operation will use the "highly specialised" barge Morholmen, a new addition to the company's fleet.

Peninsula launches Zeebrugge supply operation

Peninsula is establishing a physical supply operation at Zeebrugge, Belgium.

Piotr Dabrowski, Head of Physical Sales at Peninsula says: "We recognise Zeebrugge as a valuable addition to our ARA operation. Licenses are in place and we are currently finalising asset allocation to the port. We are confident this will be a successful operation, backed by experienced professionals controlling each link of the supply chain to ensure quality products and service."

He adds: "The addition of Zeebrugge to our physical supply network is in response to our customers' need for a high-quality and operationally reliable supply solution in the region. Due to its geographical location, we will be able to structure optionality between Zeebrugge and other ports in ARA, as well as Scandinavia and the Mediterranean."

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ADAPTING TO CHANGE

World Bunkering asked Singapore Shipping Association (SSA) for its views on the prospects for the country's bunkering sector

In response to a number of questions put by *World Bunkering*, SSA President and Hong Lam Marine CEO Caroline Yang, Chair of SSA Marine Fuels Committee of SSA and General Manager of Thenamaris Singapore, Apostolos Boutos and Vice-Chair of SSA Marine Fuels Committee and Managing Director of VPS Singapore, Capt Rahul Choudhuri put their heads together and provided the following responses.

WB: What are the main challenges facing the bunker sector in Singapore?

SSA: There are two parts to this question, local and operational challenges and the challenge to Singapore as the number one bunkering port in the world.

Singapore as a bunker hub port offers multiple advantages and provides fair conditions, especially with both the mandatory regulated use and, the robust statutory enforcement of the MFM system, for both the ship owner/operator and the bunkers supplier/barge operator.

For the immediate term, the current fluid Covid-19 situation with new variants, is posing challenges for the bunker industry in Singapore. While the sector is taking all the necessary precautions to keep our crew safe (e.g. antigen rapid tests every 14 days for harbour craft crew; wearing the necessary personal protective equipment while onboard, etc), emerging variants have resulted in stricter border controls and travel restrictions. Most of the bunker tanker crew are from Indonesia, and when under the Not-to-Land (NTL) status, we (SSA) have constant engagement with the Maritime and Port Authority of Singapore (MPA) to facilitate safe crew change for the bunker sector for bunkering operations to continue in Singapore.

Since the IMO 2020 Sulphur Cap came into force, we see that the control of bunkers quality along the whole value chain is another challenge that the industry faces. Like any other ports, there are instances of fuel quality issues in Singapore. Last year, our overall fuel off-spec data showed Singapore's fuel quality to be behind other Asia Pacific ports and China. This has improved in 2021 but more can be done. Currently the industry is engaging with its members and MPA whether the mandating of ISO 8217:2017 fuel quality standard would help to raise the standard of fuels lifted in Port of Singapore.

The impending IMO 2050 carbon emissions target is another challenge that the bunkering industry is grappling with. The bunker sector needs and wants to be ready for this decarbonisation. The bunker sector will have to take guidance from the fuels that the ships consume and will build the bunker tankers.

The various bunkering challenges are in many respects discussed at the SSA Marine Fuel Committee with knowledgeable members who are industry stakeholders. Their collective views are shared with the MPA for review and implementation. In turn the MPA also reaches out to us to seek our inputs on impending regulations, policies and initiatives. This is a unique private-public collaboration which we believe will help the bunker industry overcome challenges.

Our number one position as the world's busiest bunkering port cannot be taken for granted. Currently, we see ports in China with the availability of straight-run low sulphur fuels, competitive prices and their government's push to develop their bunker sector. This is an area that we must keep our attention on.

WB: Some Singapore suppliers have been criticised for selling at very low prices. Is that fair?

SSA: Market and regulatory conditions in Singapore offer a level playing field. This means that with healthy competition there should be a rather small gap between the lowest and highest offer available in the market. Being able to offer much lower than the average prices in this market could possibly be due to following:

Singapore has many suppliers. VLSFO, being a blended fuel, is now made up of very different feedstock which some suppliers can source more cheaply than others, therefore they have a natural advantage.

The supplier has to move its current stock fast (e.g. has new cargo arriving and needs to move product in order to receive new cargo) which is also fair but not expected to happen too often and reflects suppliers' commercial inefficiency.

Based on the above, we need to examine how low the offered price is, how often this happens from the same supplier and why this is so.


Caroline Yang


Apostolos Boutos


Capt Rahul Choudhuri



We believe that besides price, the level of service and assurance on quantity and quality of fuel is equally important for the sustainability of the business in the long-term. So to us it is not a question of whether it is fair, but whether it is sustainable. Caveat emptor should still matter we would think.

WB: Is further consolidation of the bunker sector in Singapore is likely?

SSA: There was a major consolidation when the IMO 2020 Sulphur Cap came into force 1 January 2020, because it was a new type of fuel with no homogeneity, the natural advantage skewed towards the bigger traders and the oil majors who has the supply and the ability to blend, with the smaller and medium size companies feeling the squeeze and many have substantially scaled down this area of business. So the short answer is no.

WB: What effect has the mandatory introduction of mass flow meters had on Singapore suppliers?

SSA: The regulation on the mandatory use of Mass Flow Meters (MFM) was a very positive development which reshaped the suppliers' landscape in Singapore. It has not only created a level playing field using smart technology, but also removed unprofessional and unscrupulous operators.

With MFM installed on bunker tankers and the critical system of piping control and the mandatory written standards (SS 648) for bunker delivery in the Port of Singapore, efficiency, productivity and transparency in bunkering is greatly enhanced. Furthermore, the robust monitoring, very stern and swift enforcement by MPA of suppliers who fall foul of the MFM regulation, ship owners are assured that the quantity ordered will be the quantity delivered.

Another factor is the constant engagement of SSA and the shipping players with MPA on feedback and follow-up of inputs on the use of MFMs, to improve the robustness of the MFMs and increase the efficiency of operations using the MFM system. This is what sets the Port of Singapore apart from other ports where MFMs are being used.

Besides MFM, Singapore will be introducing the use of electronic bunker delivery note (EBDN), delivery of bunker from terminals using MFM and verification of MFM on bunker tanker using a master meter. All of these developments have the aim of digitalising the industry to improve the efficiency of the bunker operations (and the port) which will contribute to Singapore's position as a top bunkering hub port.

Nevertheless, the role of the bunker surveyor should not be ignored as all man-made system are prone to system default or manipulation. There is continued need for vigilance in any case, and no reason why man and machine cannot work effectively together.

WB: What effect has Covid-19 had on the Singapore bunker industry? Has it led to long-term changes in the way bunkering is done, i.e. more use of IT?

SSA: It is true that Covid-19 has introduced some changes to the bunker industry. Bunkering operations personnel such as surveyors are required to be vaccinated and undergo regular routine testing. They are only allowed to perform their tasks if their test results are negative. They must also be in full PPE when conducting bunkering operations, tests and checks on board vessels.

To minimise the possible spread of the Covid-19 virus, bunkering operations are made contactless as much as possible. This means that shore personnel, such as bunker surveyors, do not come into direct contact with bunker tanker crew.

However, due to the nature of the industry, it is still unclear whether these changes are here to stay for the long-term. It would also be interesting to see if these changes have helped provide efficiencies (e.g. faster operations, lower operating costs) or increase transparency. If they fail to improve on these two fronts, it is highly likely that they will disappear as soon as the Covid-19 situation is over.

From a commercial perspective, the 14 days quarantine from last port call imposed in several countries in Asia has affected bunker purchasing decisions for owners. In some instances, shipowners who would have come to Singapore to take bunkers, have chosen other bunkering ports (e.g. Zhoushan, Yosu) so as not to affect the commercial employment/trading of the vessel.

An area which we do see a possible long term change is the digitalisation of bunkering with the EBDN and all the accompanying documents for a bunker operation, the EBDN was always in the works but the Covid-19 situation has indeed hastened the process.

WB: Singapore is developing LNG bunkering. Do you expect a decline in MGO and HFO and blended fuels within foreseeable future?

SSA: The shipping industry is gearing towards green shipping and decarbonisation to meet the IMO emissions targets for 2030 and 2050. LNG is seen to be a clean fuel as we move towards green shipping. For many, at least, it is a transition fuel until other technologies and alternative fuels have been developed/tested and proven.

There are about 60,000 larger ocean-going vessels still out there that need fossil fuel to run them. 10-15% of new building vessels are LNG-fuelled. This suggests that while demand for LNG will pick up, it may not be the fuel of choice for the years to come. Against this scenario, the share of MGO, HSFO and blended fuels is expected to decline in the coming years, in favour of LNG, bio-fuels and other alternative fuels that can assist in reaching the climate targets.

We are reviewing all possible alternative fuels to meet the IMO 2050 carbon emission target. For example, the SSA Marine Fuels Committee has set up an Alternative Fuels Sub-committee to engage our members and maritime stakeholders on discussion of other fuels such as ammonia and hydrogen. However, until infrastructure and alternative fuels start to become consistently available on a global scale, traditional fuels will remain in dominance for deep-sea ocean vessels.



Goh Tiak Boon

LNG BUNKERING IN SINGAPORE

World Bunkering asked Goh Tiak Boon, Vice President, LNG Marketing - Asia at NextDecade Corporation for his views on the development of LNG bunkering in Singapore

Just four years ago, Technical Reference 56 (TR 56) was launched as the world's first national LNG bunkering standard to prepare Singapore's marine fuel sector for the advent of gas-powered propulsion. What developments have there been since then, and what is the Technical Committee working on now?

GTB: When TR 56 was first launched by Enterprise Singapore in 2017, LNG bunkering was still in its nascent stages of development. Two LNG bunker supply licensees were just appointed and there were no LNG bunker barges built or operating in the Port of Singapore yet. The focus then was on truck-to-ship (TTS) bunkering to harbour craft. When we updated and launched TR 56: 2020, we had accumulated thousands of hours of TTS bunkering experience, were about to see the launch of two brand new and state-of-the-art LNG bunker barges, and were soon to add another LNG bunker supply licensee to support the growth of LNG bunkering in the Port of Singapore.

As a Technical Committee overseeing the review and development of LNG bunkering standards, we have learned from TTS bunkering operations conducted in Singapore and other parts of the world, and gathered feedback from industry players to make enhancements to LNG bunkering standards. These include finessing the Bunker Delivery Note and dispute resolution process for LNG deliveries, identifying quantity measurement methods and simultaneous operations requirements for ship-to-ship (STS) bunkering, just to name a few. Throughout this journey and developments made, the objectives of ensuring efficient and effective operations at an affordable cost that is safe for people and the environment have remained constant.

WB: In Europe there is some opposition to investing in LNG infrastructure on the basis that it would be better to move directly to zero carbon fuels, such as hydrogen. Is the same debate taking place in Asia and does that concern your company?

GTB: "There has been much interest (and debate) on the approaches to a zero-carbon future. Overall, I believe that such discussions are good as it drives focus and intentionality for a cleaner, and therefore, more sustainable future that we all hope for. That said, this vision needs to start with practical solutions and that for me requires a process of transition rather than just 'a flick of a switch'. A practical 'clean' marine fuel should be widely available, be affordable (or at least cost competitive), and possess suitable infrastructure and a good safety record. Take the example of hydrogen – at this time, very little hydrogen is 'green' because the process of electrolysing water to separate hydrogen atoms from oxygen is hugely energy intensive (and costly!). 'Blue' hydrogen on the other hand is more affordable but because the process ultimately derives power from natural gas, critics of it do not consider it to be truly zero-carbon (even with carbon capture and storage!). If we are fixated on such views, then even hydrogen is not spared of the same criticism as LNG.

Personally, I believe that achieving a carbon-neutral society will require more time, and more than one form of fuel. For Asia, where most of the world's economic growth is expected to come from, energy demand will continue to grow. In order to sustain such growth, Asia will require more fuel, coupled with supply security and

price competitiveness. I do not think that hydrogen, or any renewable we know of today, is able to meet all these conditions. It is not only an issue of necessity and practicality, but also of energy equity wherein many Asian countries, the idea of a 'western push for climate change' rings of hypocrisy after the last industrial revolution."

WB: Maersk is investing heavily in methanol as a fuel. Are you concerned LNG bunkering won't take off to the extent originally hoped? Are 100 LNG bunker barges still needed?

GTB:"As I alluded to in the previous response, I believe that we will need more than one type of fuel to transition to a zero-carbon society. The marine/bunkering industry is no exception. Different fuels will work for different companies, depending on a variety of factors such as supply chain, shipping routes, transition strategy, etc. All in all, it should lead to one common outcome – a slate of cleaner, low-carbon bunker fuels than what the industry had used 5 years ago. And the infrastructure will have to evolve according to the take-up rates of different fuel-types.

There are currently 575 confirmed LNG-fuelled ships and 199 additional LNG-ready ships. In the same month of August when Maersk ordered 8 Methanol vessels, 12 LNG fuelled vessels were ordered. Interestingly, already in the first week of September alone, the numbers in August had been beaten by new orders of LNG-fuelled vessels!

WB: Where is the finance for LNG bunkering coming from?

GTB: I believe that the current/usual types of financing will continue to support investments in LNG bunkering given the length of time needed for clean energy transition. Personally, I think "alternative" fuels may continue in a more supplementary role for longer than what the narratives for energy transition is espousing. This is simply a matter of practicality and affordability. In Asia, I doubt the sustainability of energy policies that increases energy costs without any assurances of reliability or supply security.

WB: How do you see the future for LNG bunkering in Singapore?

GTB: In my opinion, instead of a definitive energy mix for her myriad of industry sectors (including Marine), Singapore will continue to evolve and dynamically adapt to changing global supply and demand factors and political shifts. This is no way an indictment of the efforts taken to ensure that Singapore remains competitive as a destination for trade and industry but rather, it simply speaks to the long transitory journey to a carbon-neutral society.

In fact, I believe that in the Marine sector, we are well-poised for future changes to environmental requirements. TR 56 puts us well ahead in the technical-readiness aspect of LNG bunkering. I expect that as more developments are made to LNG infrastructure here, more demand for LNG bunkering will follow. But this will not occur in the absence of alternatives for bunker fuels like methanol, ammonia, or hydrogen. These different options will be good for Singapore's marine industry in terms of risk diversification, as well as development of sustainable infrastructure that will see us to the next decade and many more.





Alfa Laval PureSOx scrubber system Training Centre in Shanghai, China. © Alpha Laval

STUDIES "BACK SCRUBBERS"

Clean Shipping Alliance points to new research that it believes strengthens the case for exhaust gas cleaning systems

The Clean Shipping Alliance (CSA) says that two recent studies support the case for using exhaust gas cleaning systems (EGCS) to comply with IMO's 0.50% sulphur in fuel regulation.

It has welcomed the European Maritime Transport Environmental Report (EMTER) which analyses the environmental impact of the maritime transport industry.

Commissioned by the European Environmental Agency (EEA) and the European Maritime Safety Agency (EMSA), the EMTER marks the "first comprehensive health-check of the sector". The publication covers key environmental impact such as GHG emissions, air and underwater pollution, non-indigenous species as well as oil pollution.

The report acknowledges that EGCS is "one of the most mature after-treatment technologies" designed to remove SOx from the exhaust gases and that scrubbers are recognised by EU rules as an alternative to using low-sulphur marine fuels.

The publication also highlighted two EU co-funded projects that promote the use of scrubbers in sulphur abatement: the "Back from Black" project that studies the deployment of affordable retrofitted scrubbers for SME shipowners and the "Closing the Loop" project that uses scrubbers to increase the environmental performance of short-sea shipping routes in northern Europe.

However, the report also mentioned that washwater discharge from open-loop scrubbers is a matter of potential concern for some member states, especially in high-traffic density areas. The CSA says it hears these concerns, and will continue to work with the EU by providing the sound scientific data to further demonstrate that the EGCS washwater is benign with no negative impact on the marine environment.

According to CSA, as an effective and widely-accepted technology for sulphur abatement - as underlined by the report - scrubbers have contributed to the implementation of the IMO 2020 sulphur regulation.

However, CSA asserts, in addition to lower sulphur (SOx) emissions than the alternative compliant fuels, EGCS using HFO are also emitting less NOx and PAHs, and contributing substantially less CO_2 to the atmosphere on a lifecycle basis, making EGCS an important step to a zero-carbon future. Already the industry is exploring methods of carbon reduction and carbon capture with these systems.

With maritime transport being essential for EU and global trade and the expected growth of this sector over the next decades, the CSA welcomes the continuation of the work stream proposed by the EU to the IMO on the evaluation of EGCS use. With scrubber technology and science further advancing, the CSA is confident that EGCS will continue to play an important global role in emission abatement.

The washwater issue remains controversial and CSA is also pointing to a new study by the Danish Hydraulics Institute (DHI), which shows that in a standard OECD port environment and in a high-traffic seaway, the operation of open loop scrubbers does not harm the marine environment.

DHI is an independent, international research organisation headquartered in Denmark that has special competence in the fields of water, environment and health. It is well known in the marine industry for testing and approval of ballast water systems and other risk assessments of vessel effluents. All of their testing and reporting in this new study was conducted in accordance with ISO standards and IMO (GESAMP) recommendations.

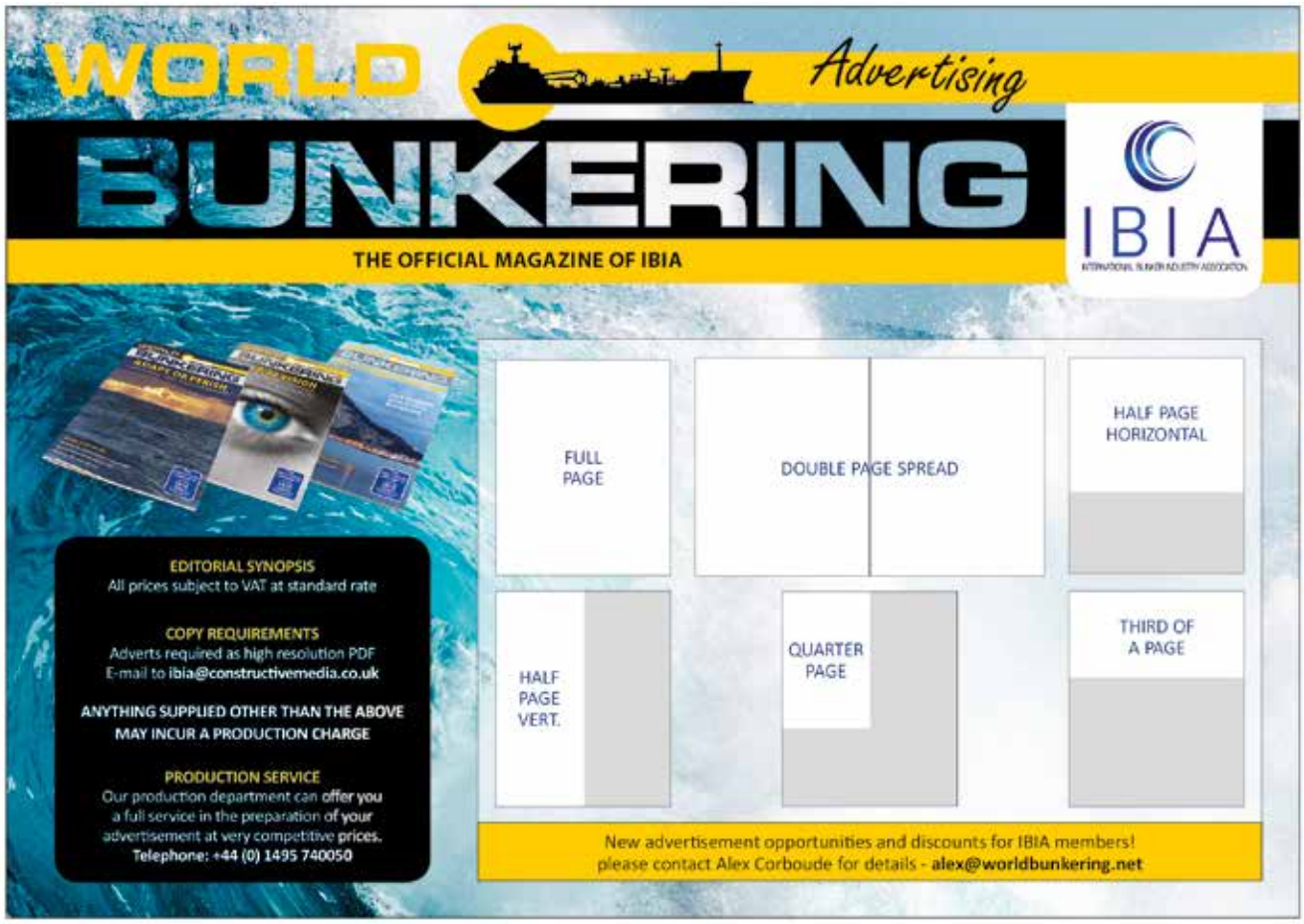
After collecting wash water discharges from four ships operating open loop scrubbers in northern Europe, the DHI study uniquely conducted whole effluent toxicity (WET) tests with representatives of the marine food chain, including species of algae, crustaceans and fish. The study then calculated predicted environmental concentrations (PEC) of the scrubber discharge water with MAMPEC modelling before completing environmental risk assessments for three significant scenarios: GESAMP Model Harbour, OECD Model Harbour, and OECD Shipping Lane. For all three, at no stage did the concentrations of scrubber water into the environment exceed the predicted no-effect concentration (PNEC), meaning that no further assessment of toxic effects to the aquatic environment is considered necessary.

Christopher Fee, Vice Chairman of the Clean Shipping Alliance, says: "We want to direct attention to this new DHI study, which we believe sets a new high standard for scientific rigour in ecotoxicity studies related to operations of open loop scrubbers. The comprehensive approach, standard protocols and very conservative assumptions used by DHI – such as modelling all ships as equipped with scrubbers, although currently only about 4 to 6% of ships actually are – provide additional credibility to the these very positive results. It's an important addition to the scientific literature."

While there has been considerable focus on LNG and potential zero carbon fuels in recent months, it appears that owners of large container ships have been quietly ordering scrubbers for their newbuildings.

As of August this year, just over 70% of large container ship newbuildings ordered in 2021 will be fitted with scrubbers, according to a BIMCO statement based on Clarksons' data. Out of 168 container ships of 11,800 TEU or more ordered, 117 will have scrubbers fitted during construction.

Interestingly, 29 of the scrubber-equipped ships will also be capable of using LNG.





Capturing the CO_2 in ships' emissions is a technical challenge

SCRUBBING OUT CO_2

Robert Allen of the UK's University of Plymouth provides an expert opinion on whether scrubbing could be a viable option to reduce carbon dioxide emissions

The burning of one tonne of a 3% sulphur heavy fuel oil (HFO) will typically release 60 kg of sulphur dioxide (SOx), 60 kg of nitrogen oxides (NOx) and 3,200 kg of carbon dioxide. Proven technologies exist to reduce both SOx and NOx but shipborne technologies to reduce CO_2 are yet to be fully developed.

Overall emissions have been reduced by the implementation of efficiency indexes and IMO has stated that "by 2025, all new ships will be 30% more energy efficient than those built in 2014" which means that with less fuel consumed lower emissions are achieved. On this basis, to reach a 50% reduction by 2050 a further 20% must be achieved.

Onshore technologies do exist to capture CO_2 from the atmosphere and the technology employs scrubbing the air with a solution of potassium hydroxide (KOH).

It is the hydroxide ions (OH-) which react with the CO_2 to form a carbonate and water. The equation is: $CO_2 + (OH-) + (OH-) = (CO_3)-- + H_2O$, and for a theoretical 100% capture, 44 kg of CO_2 requires 34 kg of hydroxide ions.

Sodium hydroxide (NaOH) is used in fresh water closed loop ship scrubbers for SOx reduction, but if applied for the removal of CO_2 excessive amounts would be needed. A simple calculation indicates that to scrub all the CO_2 produced by the burning of one tonne of HFO would require some 5.8 tonnes of NaOH and even a 20% reduction in CO_2 emissions would require approximately one tonne of NaOH in a solution.

This an oversimplification and does not consider the efficiency of a scrubber or that the washwater may need further treatment to achieve the IMO minimum pH level of 7.5. The conclusion is that the use of alkali metal hydroxides in solution, to reduce CO_2 emissions on a large scale, is likely to be impractical.

Alkaline water containing OH ions can be obtained from the electrolysis of water used to produce hydrogen. However, based on information on the energy to produce hydrogen and thus a solution containing OH ions, and if the electrical energy for the electrolysis is from a diesel generator, then it is estimated only 20% of the emitted CO_2 could be captured using the hydroxide ions produced. In short on-board electrolysis is a net emitter of CO_2 and this is a non-viable solution for ships. It is only viable if the electrical energy is from a renewable land-based resource.

A ship trial undertaken by a scrubber manufacturer used alkaline water of pH 9.5 (produced by electrolysis) in a two-stage scrubber. This trial demonstrated significant reductions in the levels of all three acidic gas emissions. A presentation about this trial performance was presented to the IMO, but exact details of the trial have never been published, nor was the trial work continued, so an accurate assessment of its viability cannot be made.

Other methods of producing alkaline water are under investigation. One method was identified using known non-chemical water purification technology and a small-scale tests rig was built and evaluated. A scaling up exercise indicated it would be possible to produce 20 m3/hr of pH 9.5 water on a ship for a production cost of less than US$10 per hour. Work is yet to be undertaken on how efficiently CO_2 is captured in a simulated scrubber using alkaline water, including the quality of the resultant wash water.

The road to zero/low GHG emissions will unlikely be achieved using a single technology and any system adopted will need to be low cost, robust and perform efficiently in service. Alkaline water scrubbing has been proven in land-based CO_2 capture and the goal is now to develop this technology for ships.

CARBON CAPTURE AT SEA?

David Hughes looks at some the of carbon capture development projects that are underway now

Scrubbers are a pre-process of most carbon capture storage (CCS) technologies, according to Anders Skibdal, CEO of scrubber manufacturer PureteQ.

He says: "In Europe most of the decarbonisation is planned to come from one or another CCS technology. In other words, if scrubbers are prohibited or limited the world will end up with a budget deficit on the carbon reduction scheme. Whether or not CCS technologies will end up on ships remains to be seen, but many reputed technology providers are working hard to make it happen. The immediate barrier is that most CCS technologies require a lot of energy and energy is a scarce resource onboard most ships".

He adds: "In 2020 PureteQ and associated company EStech began a research program into CCS technology and have now applied for patent on a process that combines carbon capture from exhaust gas with hydrogen production. Combining the processes allow for lower cost of removing/reducing CO_2 as some of these costs are offset by earnings/benefit of producing hydrogen. PureteQ is also involved in a project based on an American patent of chemical sequestering of CO_2. The process transforms the CO_2 to sodium carbonate and sodium bicarbonate (baking soda), which in turn can be used to augment the oceans natural carbon cycle or other purposes. The third project that we are involved in is based on a Dutch Electro CO_2 patent and is simply improving the dominant process of amine scrubbing to make the process more efficient."

Meanwhile Japan's "K" Line has been conducting a joint project with Mitsubishi Shipbuilding and Class NK to develop a CO_2 capture plant onboard a vessel as part of the company's Research and Development for Advancing Marine Resources Technologies programme. A small CO_2 capture plant has been installed on the coal carrier Corona Utility, operated by "K" LINE for Tohoku Electric Power Co, at Mitsubishi Heavy Industries' Yokohama Works (MHI).

After departure of the vessel from MHI, experts from Mitsubishi Shipbuilding will be on board the vessel for one voyage to commission the small plant, evaluate its operation performance at sea, and analyse the captured CO_2. After that, until March 2022, the ship's crew will evaluate the operation, safety and operability of the plant.

In another project involving Japan, Alfa Laval and the country's National Maritime Research Institute (NMRI) say they have succeeded in onboard CO_2 capture testing using an exhaust gas cleaning system

Initiated by NMRI, the CO_2 capture testing project was designed to provide real-world validation of results achieved in the lab. Since it required a proven, full-scale hybrid scrubber system, Alfa Laval PureSOx played an important role. A Japanese shipowner associated with the research, who had installed PureSOx for SOx compliance on a newbuild, arranged with Alfa Laval and the shipyard to include the testing in the vessel's sea trials.

"Alfa Laval PureSOx is a proven solution with a long track record in SOx abatement," says René Diks, Head of Exhaust Gas Cleaning Systems at Alfa Laval. "The positive results from our project with NMRI Japan show that scrubber technology could also play a role in removing carbon at sea."

Alfa Laval sees CCS as a potential bridge technology, offering the possibility to extract carbon from emissions until carbon-neutral fuels become more viable. In a full CCS solution, carbon removed from a vessel's exhaust gas would be stored to prevent it from entering the atmosphere. For this project, the scope was limited to showing that a scrubber could perform the CO_2 capture on board. The modified PureSOx system was able to absorb CO_2 from the auxiliary diesel engines in port, while operating in closed loop.

"Both short-term and long-term solutions will be needed to achieve IMO Greenhouse gas emission reduction targets," says Diks. "Much development is needed before CCS can be deployed at sea, but this preliminary testing showed clear potential in the approach. Though designed to remove SOx, PureSOx demonstrated its ability to remove CO_2 while operating in closed loop."



René Diks. Head of Exhaust Gas Cleaning Systems at Alfa Laval. ©Alfa Laval



ENERGY SAVING TECHNOLOGY CREATES CHALLENGES

Watson Farley & Williams' maritime team explains the issues that could arise from the development and use of energy saving technology (EST)

EST in ships is likely to play a significant part in the transition towards sustainability. However, the installation and financing of EST on ships may present several challenges, particularly with existing ship financiers.

A recent report, The Sustainability Imperative – ESG – Reshaping the Funding and Governance of Shipping by Watson Farley & Williams (WFW), indicates a mixed response from the ship finance sector. Hardly any financiers were willing to contemplate a subordinate mortgage being granted and/or registered in favour of EST finance. Their willingness to relax covenants to accommodate EST financing was also lukewarm.

This may reflect their experience and approach to date with the financing of retrofitting scrubbers, which has overwhelmingly been achieved by an up-sizing of existing facilities by the existing financiers, relying on their existing ship security (supplemented and amended as necessary to cover the additional exposure), rather than by the provision of new financing by third parties and/or the suppliers themselves.

It is unlikely, however, that this will be the only model which applies in relation to EST. There is likely to be diversity both of industry players and also of the type of equipment involved, which may include kites, Flettner rotors, rigid-adjustable sails, hull-bubble generators, fuel devices and batteries.

The degree of integration of such equipment in the fabric of the ship will vary, unlike scrubbers, which are fully integrated and for practical purposes extremely difficult to remove, such that the ability of a scrubber supplier, to lawfully retain title and, even if it could, to then repossess and re-sell its goods economically or without risk of causing damage to the ship is open to considerable doubt. The likely second-hand value of EST and its lower cost of removal compares favourably with scrubbers which have a second-hand value of little more than scrap from which the disproportionate costs of their removal must be deducted, but this will vary depending on the nature of the technology involved.

The appetite for such financings may increase to the extent that EST, once installed, does not form a fully integrated part of the ship and can cost-effectively be removed, transported and re-sold.
As to the industry players, the supply of EST could involve tech start-ups and joint ventures, possibly with direct or indirect government support – a constituency different from ship financiers. The suppliers are quite likely also to be the financiers, sometimes with separate financiers behind them –taking in turn a varying degree of risk on, and involvement with, the supplier and its contractual arrangements with the shipowner/operator.

The nature of the equipment and the nature (and appetite for risk) of the suppliers will each have an impact on contractual arrangements, which will differ from the up-sizing financing model so far seen with the retrofitting of scrubbers.

The arrangements contemplated assume the installation of EST on trading ships, that EST does not come with a newbuilding as part of the specification and, even when installed, may not form a fully-integrated

part of the ship at all. Indeed, the appetite for such financings may increase to the extent that EST, once installed, does not form a fully integrated part of the ship and can cost-effectively be removed, transported and re-sold.

An EST supplier which does not have security over the ship itself is at first sight in a weak position regarding security over EST. It may either acquire title to the equipment and become a lessor to the shipowner/operator (or sell it outright on terms that include a "retention of title" provision, under which title will pass on payment, rather than earlier delivery), or become the holder of some kind of security interest over the EST (in English law terms, a chattel mortgage). It is likely that the former will be more popular than the latter.

Chattel mortgages cannot usually be registered, leaving the EST financier with an unregistered, equitable mortgagee interest with rights that will not be recognised at all in many jurisdictions to which ships trade. Even in those jurisdictions in which such interests are recognised (such as the UK), such a chattel mortgage may still not give full protection. Lessors will by contrast at least have title, i.e. a proprietary interest that ought to be recognised wherever the ship trades. However, in either case the EST supplier is potentially looking to repossession of, or enforcement against, equipment which is on a ship that could in some cases be arrested in any part of the world by other maritime creditors of the shipowner.

An EST supplier should, however, have a right to arrest the ship in order to obtain security for the sums owed to it (i.e. as distinct for its claim for repossession of property to which it retains title) if the shipowner defaults under the EST supply contract. The 1952[1] and 1999[2] Arrest Conventions (the Arrest Conventions) give a right of arrest for a claim in respect of "goods or materials wherever supplied to a ship for her operations or maintenance"[3]. Almost all countries in the world, even those that have not ratified either Arrest Convention, such as the USA, permit the arrest of ships for sums owed to suppliers of goods or materials or, as known in the USA, "necessaries"[4]. Maritime claims for the supply of goods under the Arrest Conventions will rank below a registered mortgage. In a few jurisdictions, however, (most notably the USA) the position is different. Claims for "necessaries provided in the United States" are treated as preferred maritime liens[5]. Such claims will also usually prime ship mortgage claims in South Africa[6]. These claims do not normally survive a change of the ship's ownership, at least in Arrest Convention jurisdictions. Further, if the lessee or purchaser of the EST is a lessee operator or a commercial bareboat charterer who then redelivers the ship to its registered owner, the EST supplier then loses its right of arrest. An EST supplier which has lost a right to arrest the ship may be able to seek an injunction or attachment to recover its goods outside the usual ship arrest framework, but this is likely to be cumbersome and expensive.

Nevertheless, ship mortgagees will be wary of third-party EST financing due to the rights to arrest it may confer on the EST supplier. A third-party charterer may also want to curb the EST supplier's rights to arrest and could insist on its own quiet enjoyment rights from an EST supplier in addition to those it may require from a mortgagee of the ship.

Consent from a mortgagee ship financier will almost invariably be required for EST financing to be put in place because of the typical restrictive undertakings which the shipowner will have agreed with the mortgagee. Restriction on structural modifications is the most obvious, but restrictions on the incurring of financial indebtedness could also be engaged (if the EST supply arrangement falls within the applicable definition of "financial indebtedness" and outside the scope of any permitted levels of indebtedness for operating the ship etc.). Further, if the EST supplier is to look to the cashflow from the ship's earnings to service the shipowner's EST obligations, the mortgagee will need to allow an exclusion from the comprehensive assignment of earnings it will invariably have. This might seem like a "big ask" of a ship mortgagee: watering down the restrictive undertakings and diluting its security over earnings in order to accommodate a third party which may have a right to arrest the ship in the event of the shipowner defaulting under its EST obligations.

If the demand for EST continues to grow – as seems likely if not inevitable – the stage will soon be set for ship financiers and EST suppliers to try to resolve the inherent tensions between their competing rights and interests. Shipowners will surely be involved in encouraging and promoting those solutions. Any solution will inevitably involve coordination or intercreditor arrangements between the ship financer/mortgagee and the EST supplier.

One avenue to explore in terms of supply might be an arrangement around granting the ship mortgagee the right (and/or, possibly, the obligation) to step into the shipowner's EST supply arrangements on shipowner mortgage enforcement and/or EST supply default, in return for the supplier conditionally agreeing to waive its rights to arrest the ship. Such a mutual accommodation would reflect that EST enhances the value of the mortgaged ship and that any right of the EST supplier to arrest the ship in which the mortgagee will usually have both a prior-ranking claim and a much greater economic interest might, in practice, be seen as no more than a nuisance right. Even if this is a model which has potential traction, the devil will inevitably be in the detail and there is unlikely to be a 'one size fits all' solution that obtains market acceptance.

[1] International Convention for the Unification of Certain Rules Relating to the Arrest of Sea-going Ships, 1952
[2] International Convention on Arrest of Ships, 1999
[3] Article 1(1)(k) of the Arrest Conventions
[4] 46 U.S. Code § 31342
[5] 46 U.S. Code §31326(b)(2)
[6] s. 11(4)(c) Admiralty Jurisdiction Regulation Act, No. 105 of 1983 as amended by the Admiralty Jurisdiction Regulation Act, No. 87 of 1992





The Momjasa fleet includes the Monjasa Sprinter ©Monjasa

MARKET INFORMATION TIE-UP

New move expands access to price and availability data

Global oil and shipping group Monjasa has formed a data partnership with maritime technology company ZeroNorth that makes Monjasa's bunker market information available in Optimise, ZeroNorth's vessel optimisation platform.

Optimise users will now be able to access data from Monjasa spanning bunker prices and availability of the most common fuel grades at key bunkering hubs such as Singapore, Rotterdam, Houston and Fujairah and also smaller or more regional trading ports.

Monjasa's data covers the current market price of the most commonly applied marine fuels. The partnership will also mean that Optimise will be able to access Monjasa's view of fuel availability in a range of locations.

Monjasa operates as a physical supplier or trading partner in nearly 700 ports worldwide. Optimise says it will interpret Monjasa's data together with a range of other information – both from users and from third parties - to make its recommendations on speed, route and when, where and what to bunker.
The software provides a clear indication of the upsides of any decision in both dollars and CO_2.

Monjasa's bunker market indications are calculated on the basis of trading intelligence data, coupled with factors such as local market conditions, specific delivery premiums and barge availability.

Biofuels guidance

In an initiative aimed at supporting "the safe and proper use of biofuels on board", Japanese classification society ClassNK has published "Handling the use of biofuels on ships" on its website. It outlines the characteristics of biofuels, the procedures required for their trial and permanent use, and the precautions and measures to be taken in their handling.

The publication is a technical one, but ClassNK does appear to support the use of biofuels, noting: "The use of biofuels is emerging as an environmentally friendly fuel available at present." It adds that biofuels are "generally considered 'carbon neutral' because source plants at their growing process are likely to absorb CO_2 emitted from combustion". In fact, the use of biofuels is controversial and opposed by some environmental groups. Biofuel production pathways vary and may be at odds with sustainability principles, depending on the source of material.

Meanwhile, ClassNK Consulting Service (NKCS) has launched an EEXI compliance support service for shipping companies. NKCS says it offers a full range of support, from proposing and providing the best solution for compliance with IMO's Energy Efficiency Existing Ship Index (EEXI) regulation, to developing the required documents and obtaining the IEE certificate.

Meeting scrubber guidelines

A new guide from water monitoring specialist Rivertrace examines the controversial subject of wastewater discharges and their potential environmental impact. The guide covers the MARPOL regulations controlling discharges from exhaust gas cleaning systems, exhaust gas recirculation (EGR) system bleed off, bilge water treatment and tank washing systems.

New IMO guidelines for scrubbers were formulated in February 2020, but restricted time at virtual meetings held in November 2020 (MEPC 75) and June 2021 (MEPC 76) meant that the subject was dropped at both meetings. The guide examines current regulations in detail while anticipating these and other future guidelines on water quality and monitoring for scrubbers and EGR. It also covers regulations on monitoring oil content in bilge water and from tank washing systems in tankers, including a section on the science behind monitoring and the various methods employed in modern monitoring systems.

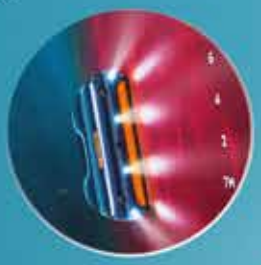
Mike Coomber of Rivertrace said: "Regulation around monitoring is a hot topic in the shipping industry. Although IMO has found it necessary to concentrate on other issues at the present time, the controversy around exhaust gas cleaning is not going away and we anticipate more national and regional authorities taking independent action. This guide will help owners and operators understand the issues and take appropriate action to ensure compliance."

The guide can be downloaded free of charge at https://hub.rivertrace.com/

Nor-Shipping 2022

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VLSFO SCORES WELL ON QUALITY

A panel discussion at IBIA's recent Bunkering & Shipping in Transition Conference looked in detail at how IMO 2020-compliant fuel has performed

In the months prior to the January 2020 implementation of IMO's 0.50% sulphur limit there was considerable anxiety about the quality of the blended fuels that were about to enter the market as 'very low sulphur fuel oil' (VLSFO).

There were worries that there would be quality issues with the new fuels that could cause operational challenges, even to the extent of main engine breakdowns.

The reality over the past year and a half has been less dramatic than many feared. At the IBIA event, its Director and IMO Representative Unni Einemo chaired a panel of senior people from the three fuel testing firms: Wajdi Abdmessih, President of Seahawk Services; Jack Grogan, Senior Account Manager at VPS and Hauk Wahl, Business Development Manager at Intertek Lintec.

Einemo kicked of the discussion by noting the quality concerns that had been widespread prior to January 2020 hadn't really materialised, but the new fuels had presented challenges.

Looking first at issues with high sulphur fuel oil (HSFO), Abdmessih said there are four main quality issues with HSFO. Viscosity is frequently off-spec, as is density. Contamination with water and/or ash is common. Then there is "the major one that we all worry about", cat fines.

By contrast, he noted that VLSFO generally does not have viscosity and density off-specs. Almost all of it is under 180 cSt and some less than 20 cSt and density is generally lower than seen for HSFO. Energy values are "good" at around 41 to 42 kJ/g. There are almost no cat fines in most VLSFO samples.

The companies represented used different criteria for defining 'off-spec'. Some include figures for samples testing outside the limit but within the 95% confidence interval in their off-spec figures, others count only those testing outside the limit and 95% confidence as off-spec.

Wahl's company found that 2.5% of VLSFO samples were off-spec compared with 4.3% of HSFO samples. Grogan said that they had found 14% of HSFO samples were off-spec by one parameter while the equivalent number for VLSFO was just 4%. Interestingly he added that the historical average off-spec for MGO is 9% so VLSFO performs better than gas oil. He said the overall message is that "these are good fuels". He added that the things you have to watch are cold flow properties and destabilisation.

Abdmessih said that the main issue with VLSFO was stability. He explained that while samples may within limits when tested, after a time, sediments started to form. Wahl concurred about sediments but added that waxing was a major issue.

Einemo commented that it appeared from the discussion that while there were fewer cases of off-spec VLSFO samples, the new fuel did present potentially serious stability issues.

However, it became clear as the discussion progressed that waxing was a big operational challenge that was frequently mistaken for the sludging associated with unstable fuels. Much of the rest of the discussion centred on the operational challenges posed by waxing.

Grogan drew attention to issues of pour point, wax appearance temperature (WAT) and wax disappearance temperature (WDT). He pointed out that the pour point of VLSFO is typically about 10 or 11 ^{0}C while its WAT is around 30 to 33 ^{0}C. However, solving the waxing problem once it has occurred requires significant additional energy as the WDT is about 45 ^{0}C.

The whole reason for introducing VLSFO was to comply with the IMO 0.50% sulphur limit. Einemo asked how the new fuels were performing in this regard.

Grogan said: "Initially in 2020 they were a little bit high while suppliers were perfecting their recipes for blending but after a few months we got to 0.50%. It is still one of the things you find off-spec because that's one of the blending targets now. Everybody is blending to 0.50% and then there is the dreaded reproducibility issue. So, I would say the vast majority what see as off-spec lie somewhere between 0.50% and 0.53%. Sulphur levels above 0.53% are pretty rare now in our system."


Unni Einemo


Jack Grogan


Hauk Wahl


Wajdi Abdmessih



Full-scale tests are being carried out by the Wärtsilä's engine laboratory team in Vaasa to assess the optimum engine parameters for running on hydrogen and ammonia fuels. © Wärtsilä Corporation

WÄRTSILÄ TAKES "AGNOSTIC" APPROACH

Technology group launches hydrogen and ammonia testing programme

Wärtsilä says it is pioneering the adoption of hydrogen and ammonia as viable fuels through advanced testing in Wärtsilä's fuel-flexible combustion engines in what it describes as a "fuel agnostic" approach.

Hydrogen and ammonia contain no carbon, meaning the combustion releases no CO_2 emissions. Full-scale engine tests have been recently carried out in Wärtsilä's engine laboratory in Vaasa, Finland, to assess the optimum engine parameters for running on these fuels.

Wärtsilä reports: "The test results are very encouraging, with one test engine performing very well when running on a fuel with 70% ammonia content at a typical marine load range. Tests were also completed successfully on another engine in pure hydrogen operation."

The company says that testing will continue "with the aim of defining the most feasible internal combustion engine-based solutions for power plant and marine applications, thereby enabling the transition to a decarbonised future with green fuels".

Wärtsilä expects to have a marine engine running on an ammonia blend this year. It anticipates having an engine concept with pure ammonia fuel in 2023. It expects that 'green hydrogen' will deliver 7% of the global energy demand by 2050.

Håkan Agnevall, CEO of Wärtsilä said: "These are milestone moments in Wärtsilä's transition to future fuels. Society will have to invest significant amounts into the infrastructure needed to develop green hydrogen, but those investments require market-ready engines that can run on the fuel once it is readily available. The energy and marine industries are on a decarbonisation journey, and the fuel flexibility of the engines powering these sectors is key to enable the transformation."

Wärtsilä is also developing ammonia storage and supply systems as part of the EU's ShipFC project. The company has already gained significant experience with ammonia from designing cargo handling systems for liquid petroleum gas carrier vessels, many of which are used to transport ammonia. In addition, Wärtsilä will begin testing ammonia in a marine four-stroke combustion engine together with customers Knutsen OAS, Repsol Norway and Equinor at the Sustainable Energy Catapult Centre in Stord, Norway, as part of the Demo2000 project.

The company's engines can currently run on natural gas, biogas, synthetic methane or hydrogen blends of up to 25% hydrogen. Wärtsilä says this "fuel agnostic" approach enables it to support the energy and marine sectors on how to shape sustainable, and efficient, future fuel strategies in several cost-optimal steps. For example, it says, hydrogen can be used as a fuel in its existing state or as a raw material for producing a wide range of future fuels, including ammonia and synthetic methane, each of which has different benefits for industrial and mobility applications.

Wärtsilä says its gas engines are highly flexible and are capable of rapidly ramping up or down in power. When wind and solar power vary with weather conditions, Wärtsilä engines can support the power system by ramping up power to meet the required load, reaching full capacity in under two minutes.



Methanol capability for Maersk box ships

Starting in the first quarter of 2024, A.P. Moller - Maersk plans to introduce the first in a series of eight 16,000 TEU container vessels that are capable of being operated on methanol, and it aims to use methanol that is carbon neutral. The ships have been ordered to be built by Hyundai Heavy Industries (HHI), with an option for four additional vessels in 2025. They will be about 15% more expensive to build than oil-fuelled ships.

The company says the new ships will replace older vessels and thereby generate annual CO_2 emissions savings of around 1 million tonnes. It asserts: "As an industry first, the vessels will offer Maersk customers truly carbon neutral transportation at scale on the high seas."

According to Maersk, more than half of its 200 largest customers have set – or are in the process of setting – ambitious science-based or zero carbon targets for their supply chains. As part of Maersk's ongoing collaboration with customers, corporate sustainability leaders including Amazon, Disney, H&M Group, HP Inc., Levi Strauss & Co., Microsoft, Novo Nordisk, The Procter and Gamble Company, PUMA, Schneider Electric, Signify, Syngenta and Unilever have committed to actively use and scale zero carbon solutions for their ocean transport with Maersk says "many more expected to follow".

Maersk says it will operate the vessels on carbon neutral e-methanol or sustainable bio-methanol "as soon as possible". It concedes: "Sourcing an adequate amount of carbon neutral methanol from day one in service will be challenging, as it requires a significant production ramp up of proper carbon neutral methanol production, for which Maersk continues to engage in partnerships and collaborations with relevant players."

However, it was also announced in August that Maersk has identified a source for carbon neutral methanol, REintegrate, a subsidiary of the Danish renewable energy company European Energy.

REintegrate and European Energy are to establish a new Danish facility to produce the approximately 10,000 tonnes of carbon neutral e-methanol that Maersk's first vessel with the ability to operate on methanol will consume annually. The facility will use solar energy and biogenic CO_2 to produce the e-methanol. Production is expected to start in 2023.

Methanol Institute promotes 'well-to-wake' GHG accounting

The Methanol Institute (MI) is calling on maritime policy-makers to adopt a 'well-to-wake' approach in GHG accounting of fuels to support the decarbonization of maritime transport.

The MI says an approach that accounts for GHG emissions of the fuel's entire value chain is essential to stimulate the uptake of renewable fuels that can drive the maritime industry's energy transition.

According to the MI, applying a well-to-wake approach in GHG accounting of maritime transport has four important implications for shipping.

A new MI policy paper includes an analysis of the consequences of focusing purely on tank to wake or 'operational' emissions. It argues that, by granting vessels propelled by ammonia or hydrogen from natural gas 'zero-emission' status, policy-makers ignore the fact that they emit more than GHG any of the other potential alternative fuels. The MI asserts: "If policymakers truly intend to apply a metric to GHG emissions which reflects reality instead of a false impression of progress, the well-to-wake approach represents the only viable path forward."

"The approach for calculating well-to-wake emissions based on fuel consumption is well established, as Lifecycle Assessment is frequently applied across different sectors to assess true environmental impact," says Matthias Ólafsson, MI Manager of Government and Public Affairs, Europe and author of the White Paper. "Shipping doesn't have the luxury of waiting for as yet unavailable fuel technologies to reach technical readiness, regulatory approval and availability when clean fuels are already available now for existing vessels and newbuilds, are readily traded on digital fuel platforms, and are available in low carbon formats."

The MI warns that a tank-to-wake approach risks selecting winners from the outset, which is "bound to stifle innovation and initiative and hinder actual progress". It says that the well-to-wake approach stimulates the uptake of fuels produced with a reduced carbon footprint but "does not eliminate the so called 'zero carbon' propulsion fuels currently favoured by the tank-to-wake approach".

Ammonia study launched

Japan-based Itochu Corporation says a joint study group it set up to consider issues arising from the use of ammonia as a marine fuel now comprises 34 companies and organisations, following a recent surge of interest.

Recent new members of the group include Anglo Eastern Ship Management; BHP; Bureau Veritas; CMA CGM; INPEX; JFE Steel; Lloyd's Register; Maersk; Navios Group; Rio Tinto; and Vitol Asia. This expansion is an indicator of the high level of interest in the utilisation of ammonia as an alternative maritime fuel.

Alex Gregg Smith, Senior Vice President & Chief Executive, M&O North Asia & China at Bureau Veritas said: "Ammonia is a strong candidate as an alternative fuel in the maritime industry. We need R&D and collaboration to assess its full potential. The work of this Coalition will certainly bring real insights and expertise to develop the innovative solutions we need."

KPI OceanConnect focuses on alternative fuels

KPI OceanConnect has launched an Alternative Fuels and Special Projects division to "enhance its counterparts' ability to achieve their sustainability ambitions".

It is being led by Bill Wakeling who says: "In the last 18 months, we've helped our partners successfully navigate through IMO 2020, and showcased our agility and innovation by completing one of the shipping industry's first carbon offsets. However, there is no shortage of challenges for shipowners and operators as they seek to realise a more sustainable future, and we'll be working with them side by side through our long-term partnership approach to help achieve their sustainability ambitions and regulatory compliance."



KPIs Alternative Fuels and Special Projects division will be led by Bill Wakeling © KPI

In July, the broker announced the successful completion of its first carbon offset transaction with "a respected seismic research vessel owner and long-term client". The voluntary carbon units are derived from a wind farm in Texas and verified by Verra Registry.

'Green finance' advice

Hogan Lovells and Watson Farley & Williams (WFW) have advised on two separate Korea Trade Insurance Corporation (K-SURE) backed 'green' financings for container liner company Hapag-Lloyd, with a combined value of more than US$1 billion.

The two firms say both transactions complied with the Loan Market Association's Green Loan Principles, and were also in line with the Climate Bond Initiative trajectory as certified by DNV GL as an independent expert.

Hogan Lovells acted for Hapag-Lloyd, while WFW advised KfW IPEX-Bank and BNP Paribas as Global Coordinators and Green Loan Arrangers.

On the first transaction, which closed in December 2020, Hogan Lovells and WFW advised on a US$417 million green term loan facility for the financing of three 23,000 TEU newbuilding container ships for Hapag-Lloyd. KfW IPEX-Bank and BNP Paribas acted as joint global coordinator, bookrunner, green loan arranger and mandated lead arranger to the syndicate of lenders. K-SURE provided ECA cover for 95% of the loan amount.

For the second transaction, which closed in June 2021, KfW IPEX-Bank and BNP again acted as Global Coordinators and Green Loan Arrangers to a consortium of banks on a K-Sure backed US$852 million syndicated green loan to Hapag-Lloyd. The loan maturity is 12 years from the date of delivery and is for the construction of a further six 23,500 plus TEU ultra large container ships. The vessels' delivery will begin in 2024. The lending consortium consisted of KfW IPEX-Bank, BNP Paribas, Bank of America, Citi, Deutsche Bank, DZ Bank, ING Bank, SMBC, Société Générale and UniCredit Bank.

All 12 vessels on order are being built in South Korea's Daewoo Shipbuilding & Marine Engineering and will be powered by LNG dual fuel engines,

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Commercial hydrogen fuel cell use has huge potential

LOOKING FORWARD

While the traditional bunker trade continues to grow in China, the country has one eye very much on the future, as John Rickards reports

The development of commercial-level hydrogen fuel cell power for ships took a major step forward in January this year, when China Classification Society issued the country's first type approval for a marine hydrogen cell to Wuhan-based Troowin Power System Technology Co.

"After 13 months' drawing review, on-site verification and type tests, CCS concluded that the performance of the fuel cells met the corresponding approval standards and then issued the first certificate of type approval for the congeneric products, which is a landmark indicating an important stride made in the commercialisation of marine fuel cells in China," the classification society said in a statement.

Troowin's type approval comes after seven years of collaborative study and development by eleven companies and institutions across China's shipping industry aimed at tackling the engineering, manufacturing and practical safety challenges posed by the highly promising technology. The Maritime Safety Administration of the Ministry of Transport of China and CCS are due to publish their interim regulations and survey inspection guidelines for hydrogen fuel cell-powered ships at the time this magazine goes to print, following several intermediate publications as research has progressed in recent years.

The approved fuel cell design is for 50-80 kW and conforms to IEC62282-3 standards as well as CCS' test requirements of design, manufacture and test according to the characteristics of the fuel cell's own performance, safety and ship adaptability. The next stage in the process is to be test-bed installation on-ship to evaluate performance in service.

"CCS and the collaboration team plan to build China's first fuel cell-powered public service vessel classified by CCS and expected to sail in the Yangtze River basin," CCS said. "The ship, with a rated power of its fuel cell reaching 500 kW, total hydrogen storage of 60 kg, and total energy storage of more than 1MWh, will completely realize 'zero emission' of sulphur oxides, nitrogen oxides and greenhouse gases, marking a new giant step forward in the application of key technologies of hydrogen fuel cell powered ships in China."

Troowin itself was able to give *World Bunkering* a clearer idea of both the scope and timetable for system deployment. "We are working with a few ship builders on projects that will lead to the demonstration of fuel cell systems for ferries and yachts, and one of the projects happens to be in Zhoushan. These projects will be completed within this year," the company said.

"We think the potential market for fuel cell systems in marine applications is huge, considering that China has launched the '30-60' initiative to see peak carbon consumption in 2030 and become carbon neutral in 2060, and the marine industry is one of the biggest sources of carbon emission. Although fuel cell technology is getting closer to commercialisation, a more viable hydrogen storage and refuelling solution still needs to be developed, and CCS also has a significant role to play in certifying whatever the most suitable solution is. We think it will take at least 5-10 years before we can actually see wide application in this market, but now is a good time to start."

It's hard to argue with that. While storage is challenging and carries significant safety considerations, and transfer perhaps even more so, given the relative simplicity of 'green' hydrogen production at volume, its use in fuel cells and other applications offers almost unmatched potential when it comes to industry decarbonisation.

As CCS itself said: "The cleaning and electrification of vessels have become a global consensus by now. Fuel cells not only can supply driving power and thermal energy for vessels but also can be used as onshore power system. As a major path for realising the cleaning and electrification of vessels, the fuel cells have

the characteristics of high energy densities and the capability of rapid energy supply."

LNG expansion

Hydrogen is highly promising in either fuel cell or methanol form, but some way off. In terms of existing alternative fuels, China's demand for LNG continues to rise, and a deal this year between China National Offshore Oil Corporation and Malaysia's Petronas could pave the way for LNG bunkering to take off in the country. The ten-year MoU covers a swathe of areas - collaboration in LNG, upstream exploration & development projects, refining, oilfield & engineering services, specialty chemicals, lubricants and renewable energy - but gives special consideration to bunkering, and not just in China itself.

"Petronas and CNOOC will also collaborate to grow the use of natural gas as a cleaner marine fuel through LNG bunkering solutions, in support of the International Maritime Organization regulations on the reduction of greenhouse gas emissions from ships," Petronas said in a statement. "Through the MoU, Petronas and CNOOC will explore the establishment of a global bunkering supply network, leveraging on both companies' experience in LNG bunkering."

Development of LNG bunkering in China has lagged a little behind other nations despite the government declaring official support for the move in 2018, particularly for inland shipping. Shenzhen is set to be the first port to offer it following a deal inked last year to build a bunkering facility there, but this is some way behind the Ministry of Transport's proposed timetable; an initial distribution network had been hoped to be in place by 2020, and 10% of bunkers for inland shipping to be LNG by 2025.

Until alternatives come on-stream, shipping in Chinese ports is going to be reliant on conventional fuel, the same as ever. And on that score, occasional tightness in local refining aside, the picture seems relatively rosy.

Bunkering growth in Yangtze Delta regions

The country's biggest bunkering hub at Zhoushan has benefitted in part from the shuttering of Hong Kong to bunker-only calls, but also from government measures to promote the Chinese bunker market, as well as strong supplier presence across its anchorages. The Zhoushan Bonded Marine Fuel Association reported sales up in 2020 to 4.724 million tonnes, up 15% on 2019 and in marked contrast to Covid-impacted demand at many other hubs worldwide. International vessels accounted for nearly 40% of total sales, and as a sector this rose much more strongly than the port overall.

Achieving the rise was "not easy", the port said, highlighting various Zhoushan marine department measures to reduce waiting times and bureaucracy, alongside financial incentives to refiners and suppliers.

The port has also seen the opening up of cross-port bunkering operations with neighbouring Shanghai, with the first pilot bunkering taking place last October, and this summer a push alongside Chinese shipping firms to see more oil tankers bunkering in the port. The ZBSFA used the rapid bunkering of a China Merchants Group VLCC in July as a promotional yardstick to entice other operators to bunker at the port, saying: "Governments at all levels and port units in Zhoushan have worked together to resolve issues such as crew shifts, third-party inspection agencies boarding inspections, and ship departures under the epidemic situation."

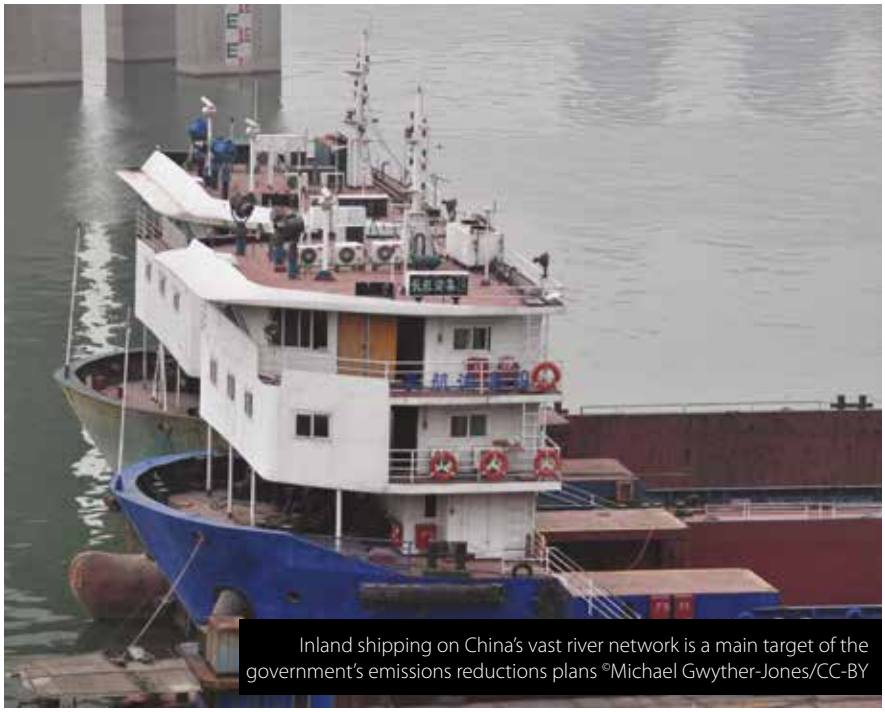
In June, Dutch energy giant Vitol announced that it was expanding its Yangtze delta bunkering operations in Zhoushan and Ningbo, in partnership with Ningbo Zhoushan Port Group subsidiary SeaportBunker, to Shanghai's Yangshan port, with two dedicated barges covering Yangshan, one capable of loading 4,500 tonnes of VLSFO, the other 2,300 tonnes of HSFO and 420 tonnes of MGO.

Speaking to *World Bunkering*, Vitol said that while the promotion of cross-port bunkering was welcome, the expansion to Yangshan wasn't a result of the measure.

"Both Zhoushan and Shanghai governments encourage cross supplies to Yangshan/Shanghai to facilitate the whole bunkering business in Yangtze Delta Regions thus support more buyers operating there," a spokesperson for Vitol said.

Instead, the move seems to have been more a reflection of the port's encouraging performance. The company is bullish about the region's competitiveness.

"[In terms of] Zhoushan and Shanghai demand, barring the recent typhoons that rendered some port closures and implementation of limited bunkering hours, we have been seeing volume in Zhoushan steadily increasing over the



Inland shipping on China's vast river network is a main target of the government's emissions reductions plans ©Michael Gwyther-Jones/CC-BY

months," the spokesperson said. "A lot of it is due to the price action in the area. Since Q2, I believe the Zhoushan/Ningbo area has been pricing itself lower than Singapore on most days. We are already seeing some major container lines constantly making comparisons between Singapore and China bunker prices in their considerations."

So, promising then, and hopefully this can be sustained.

Torrid time for Hong Kong's bunker market

While Zhoushan has flourished, to say that Hong Kong's bunker sector has endured a torrid time during the pandemic is putting it mildly. At the end of July last year, the government of the Hong Kong Special Administrative Region announced there would be no quarantine exemption for ships making bunkers-only calls, effectively making the port off-limits for that side of the trade. The exact effect of the move is a little open to question, given the ongoing effect of the pandemic on trade and traffic levels. Local media coverage in January - when the local bunker industry was pressuring the government for a US$4.1 million bailout to cover the quarantine period - quoted comments suggesting volumes were down by up to 70%. Other sources, it should be said, suggested a much more reasonable 30-40% decline. Many ships looking for bunkering headed instead to Singapore, Taiwan or the Yangtze River Delta ports, leading to fears that price competitiveness and convenience could see those ships stop bunkering in Hong Kong for good.

In June this year, the restrictions were lifted, except for ships visiting the red list countries of Brazil, India, Pakistan, the Philippines and South Africa in the previous three weeks. Cause for much celebration - and also a fuel-buying spree; Hong Kong's Census and Statistics Department reported fuel oil imports up 96.1% in May, when the move became known, versus April 2021, though these were still down 28.6% on the year before, before the restrictions hit.

But then the spread of the Delta variant became impossible to ignore. Indonesia, Russia, Ireland and the UK were added to the red list (though the latter two to no practical effect). And two months after welcoming back a lot of the port's prior bunkers-only traffic, a further swathe of countries were added to the red list, including several reasonably common points of origin for ships such as Bangladesh, Cambodia, Malaysia, Sri Lanka, Thailand, the UAE and the US.

The move came too close to the time of writing to be sure of the impact on bunker sales - or even to know if the two months of a relatively open market improved things for local players (none of whom were willing to offer *World Bunkering* an assessment of the current state of affairs). However, it doesn't seem unreasonable to expect another downturn, even if it's hopefully a smaller one.

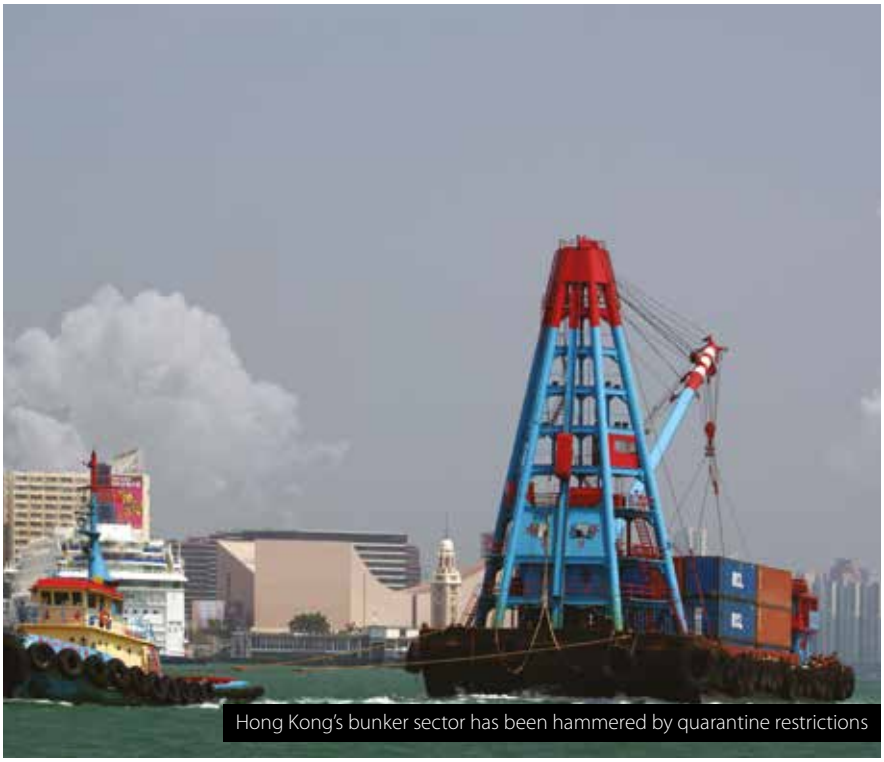
Competition even before the first quarantine measures came in had been particularly bloody, with low oil prices seeing some players reportedly dumping products below cost in order to clear inventory and heavy financial pressure on the sector.

NewOcean Energy was one such company feeling the squeeze, and looked for a time as though it would pull out of bunkering in Hong Kong altogether to concentrate on broader energy trading (assuming it wasn't buried by its losses and accounting delays). However, after posting a loss of a staggering US$308 million for 2020, the company reported losses for the first half of 2021 to be a much more manageable US$21.8 million. It is pulling out of direct bunker sales in Hong Kong, though; in April, the company said it would now sell to other suppliers only.

"When the costs of refuelling business in Hong Kong are relatively high, the Group will step up its efforts to sell wholesale to our clients who are distributors, and to lease its existing oil tankers to wholesalers or list them for sale," NewOcean said. The company was retaining a "certain extent of its marine bunkering business" in Singapore, and leasing off a large part of its floating storage capacity to other companies to save costs.

Latest government statistics suggest that Hong Kong's economy is recovering sharply, if unevenly, from the worst of the pandemic, with goods exports in particular picking up across the first half of the year.

That being so, there should be some recovery in demand from ships taking on fuel at the same time as handling cargo - it's just a lot harder to know if or when the quarantine restrictions that currently block bunkers-only calls will be lifted again.



Hong Kong's bunker sector has been hammered by quarantine restrictions



Marina Borisenko, PortNews

VOLUMES IN DECLINE

Bunker industry insiders gathered at St. Petersburg to review the state of the Russian bunker market. Olga Bogacheva reports

The 14th Forum on the Current State and Prospects for Development of the Bunker Services Market was held in late June in St. Petersburg.

The event was attended by suppliers and traders from all of Russia's maritime regions and also from overseas.

After a two-year enforced break in such gatherings, participants had the chance to meet in person.

The forum began with a live video-link presentation by IBIA Director Unni Einemo, covering the global marine fuel market. The audience Forum participants agreed that the next 10 years will see several concerning issues emerge, but was partially reassured by the expectation that traditional fuels, including low-sulphur fuel oil, will still prevail during this period.

Marina Borisenko, head of PortNews' analytical department, described the current situation in the Russian bunker market. In 2020 the decline in sales had continued and only 7.9 million tonnes were delivered in the entire Russian Federation, down 27.5% compared to 2019. This year, the trend has continued and by the end of May, year-on-year sales had fallen a further 8%. The reasons were obvious: a general decline in economic activity, the temporary cessation of cruising, periodic shortages of certain types of fuel leading to high prices and, in the Far East, fuel quality problems.

The leadership in the market has remained unchanged in recent years. The bunker divisions of vertically integrated companies - LUKOIL Marine Bunker, RN-Bunker and Gazpromneft Marine Bunker – continue to occupy the top positions almost everywhere.

The only exception was the port of St. Petersburg, where independent companies appeared in the second and fourth places in terms of delivered fuel volumes. The Baltic Fuel Company accounted for 20% of the market and Nevsky Fuel Oil for 9%.

The only positive news that emerged during the forum was the revival of the river bunkering market, which had been stagnating for many years. During the first months of the 2021 navigation season, fuel consumption in inland waters increased by almost 30%. Undoubtedly, this is the result of the deliberate policy of the government to stimulate inland water tourism.

One session of the forum was dedicated to low-sulphur fuels, looking at their characteristics and at practical experience of using them. It became clear that the main problem is the variation in properties of VLSFO from different suppliers and in different ports, even if fully compliant with fuel quality standards.

Chris Turner from Integr8 Fuels and Capt. Samir Fernandez of Maersk Oil Trading both emphasized issues arising from fuel compatibility, tank cleaning control and storage conditions in their presentations.

Also, Alexander Bedai, Veritas Petroleum Service Manager, who works in Russian ports, spoke about the extreme importance of the VLSFO conditioning and blending process. From the end of 2019, VLSFO fuel with a sulphur content of up to 0.50% began to enter the market. Large quantities of VLSFOs are made by blending heavy fuels with low sulphur components. In general, VLSFO has a lower density and viscosity than HFO. But very often VLSFOs from different providers are incompatible with each other. Unstable fuels, and fuels with a high paraffin crystallization temperature can clog up separators and/or filters, which makes it difficult and sometimes impossible to use the fuel.

The forum also heard that the Russian LNG bunkering market is developing steadily, though not at a particularly fast pace. Elena Matveeva from Gazpromneft Marine Bunker focused on the main events of 2020. In August last year, Chaika, Russia's first LNG-powered passenger vessel, made its first voyage along the Volga River. In December, an LNG bunkering vessel, the Dmitry Mendeleev, was launched by Gazpromneft Marine Bunker. Also, the

Vladimir Monomakh, the first aframax tanker built in the Russian Federation, was handed over to Rosnefteflot by Zvezda Shipbuilding Company.

In total, Sovcomflot and Rosneft currently operate seven large LNG tankers. The total number of LNG vessels under construction is now believed to be more than 16 and continues to grow. In December 2020, three state standards for LNG bunkering came into force.

Alexander Klimentyev, adviser to the Representative Office of Yakutia under the President of the Russian Federation, continued on the same theme with a presentation on the potential of LNG bunkering in the Arctic. The speaker noted that the ban on the use of HFO in the Arctic, in force from 2024, will impact Russia more than other countries, since there are large industrial projects within this region.

Moreover, unlike the other Arctic states, Russia has a permanent water route, the Northern Sea Transport Corridor, one section of which, from Dudinka to Murmansk, operates all-year-round. Replacing fuel oil with significantly more expensive distillates will certainly lead to an increase in sea transportation costs. Nevertheless, the ban also creates a whole range of opportunities for development. For Russia, it could stimulate the development of alternative fuels such as LNG and methanol.

The Arctic is now the world centre for LNG production and it is to expected that Russia will use this to its advantage. It is arguable that using the Northern Sea Route (NSR) for container transportation will only be viable using LNG. It was suggested that the combination of LNG fuel and the comparatively short length of the NSR can contribute to achieving the IMO goal to reduce greenhouse gas emissions by 50% by on the Asia-Europe routes ahead of the 2050 target year.

In addition to technical and commercial issues, the forum discussed difficulties created by new Russian tax laws. The participants focused on the changes to the Tax Code of the Russian Federation regarding the introduction of a reverse excise tax on crude oil. The law contains a number of changes concerning the procedure proposed for reimbursement of excise duty on middle distillates.

Chairman of the Association Council Vladimir Sergeev held a seminar on the results of the "regulatory guillotine". Unfortunately, this administrative reform has not brought the expected revolutionary results. However, bunker suppliers have to work here and now, so specific recommendations for actions in various situations were accepted with great interest.

The business breakfast on the second day of the forum was dedicated to price risk management. Mikhail Sheibe, Senior Analyst at Sberbank's Global Markets Department spoke about price drivers. He described financial instruments proposed by Sberbank to reduce risks and improve the efficiency of companies' activities.

Finally, the forum participants expressed the hope to meet again in St. Petersburg next year by which time, it was hoped, the Covid restrictions would be a distant unpleasant memory.

Russian refineries reduce marine fuel production

The Russian Ministry of Energy has prepared a general scheme for the development of the oil industry until 2035. The ministry's experts suggest that in 20 years, oil production may fall by 46% and exports by 25.7% due to the decarbonisation of the world energy sector.

New shipping company in Russian North-West

In the spring of 2021, the Severo-Dvinsky River Shipping Company began operating in the Arkhangelsk Region. The regional river carrier operates in the Severnaya Dvina River and its tributaries.



Delegates at the St Petersburg Forum



The company is trading in the Northern Dvina, Vychegda, Sukhona, Pinega, Vaga, and Mezen rivers.

Rosmorport will build two dual-fuel icebreakers

Rosmorport has announced a tender for the construction of two dual-fuel icebreakers capable of using LNG. The state budget will provide funds for their construction as a part of the Integrated Plan for the Modernization and Expansion of the Main Infrastructure.

The first icebreaker should be launched in July 2024 and handed over to the customer in September that year. This is the first Russian icebreaker project with engines capable of running on LNG.

Industry experts believe that by 2024-2025, Russia should have no problems with refuelling ships with LNG both in the Baltic Sea and in the Far East. It is planned that LNG bunkering vessels owned by Gazprom Neft and Rosneft, respectively, will start services in these regions.

The ice class 7 vessels will be able to operate in up to 1.5 metres of ice, and operate all year round in the Baltic, White, and Barents Seas and the seas of the Pacific basin.

Gazprom Neft, Sovcomflot to cut carbon on Northern Sea Route

Gazprom Neft CEO Alexander Dyukov and Sovcomflot CEO Igor Tonkovidov signed an agreement on collaborating in improving efficiency in Russian-Arctic maritime logistics at this year's Eastern Economic Forum. The companies' partnership envisages the deployment of digital technologies and low-carbon-footprint marine fuels.

Gazprom Neft and Sovcomflot are to expand their use of digital technologies in Arctic maritime logistics management. Sovcomflot vessels, responsible for ensuring continuous year-round shipments of Arctic crude oil from the Prirazlomnoye and Novoportovskoye fields, are now connected to the world's first Arctic logistics management system – the Kapitan system, developed by specialists at Gazprom Neft. This digital navigation platform has helped cut specific transportation costs by up to 12% by selecting optimum routes, saving fuel, reducing icebreaker escort costs, and reducing empty-vessel downtime.

Other key areas covered by the agreement include decarbonising shipping transportation through the use of alternative marine fuels: LNG, hydrogen, ammonia and methanol. The companies are committed to testing promising environmentally friendly fuels on Sovcomflot's existing tankers as part of their partnership. Russia's first LNG-bunkering vessel, the Gazprom Neft-owned Dmitry Mendeleev, is expected to be deployed in refuelling ships with natural gas.

Alexander Dyukov, Chairman of the Management Board, Gazprom Neft commented: "Sovcomflot is Gazprom Neft's main maritime-logistics partner. Vessels owned by Russia's largest commercial shipping operator transport more than eight million tonnes of Gazprom Neft Arctic blends every year. We are, already, using digital solutions in working with Sovcomflot and, under this new agreement, will be continuing to develop technologies together. Added to which, our plans to use liquid natural gas and other environmentally friendly fuels in refuelling vessels is going to ensure still greater environmental friendliness in Arctic shipping."

LNG bunkering passes 150 stem milestone

Sovcomflot and Shell have carried out their 150th LNG bunkering operation. According to a Sovcomflot press release, the Prospect Koroleva tanker took on 600 tonnes of LNG fuel from the bunker vessel Q-LNG 4000 at anchorage at Port Canaveral.

The Prospect Koroleva is under a time charter from Chevron, which is studying the possibility of further use of dual-fuel tankers.

Since the start of the LNG bunkering operations of Sovcomflot's LNG-fuelled tankers in 2018, these vessels have received more than 62,000 tonnes of LNG fuel under the contract between SCF and Shell.

The first bunkering of the Gagarin Prospect, an LNG-fuelled aframax tanker, was performed in the port of Rotterdam in 2018. Since then, LNG bunkering has been carried out in regions that are strategically important for maritime trade, starting with North-Eastern Europe and the Baltic in 2018-2019 and later with recent LNG bunkering operations in the United States and the Mediterranean Sea.

Dual-fuel ferry for Baltic route

A new dual-fuel ferry for the Ust-Luga – Baltiysk route has been launched
The General Chernyakhovsky, a road vehicle and rail wagon ferry was built by Rosmorport.

This follows the launch last year of a sister ship for the same route.

The concept, technical design and design documentation of the vessels were produced by the Marine Engineering Bureau.

Baltic Fuel buys barge

The Baltic Fuel Company has acquired an additional bunker tanker for operations in the Baltic. The 7,000 dwt, ice class 4 ship is intended for export and bunkering operations in the ports of the Baltic and North Seas.
The vessel will remain in Bureau Veritas class, operating under the Russian flag.

Baltic Fuel Company's fleet consists of 34 ships, the largest bunkering fleet in the Northwest.

Bunker volumes plunge at Vladivostok

Volumes delivered at Vladivostok from January to June 2021 dropped by 25% year-on-year, to 402,200 tonnes. The number of bunker operations decreased from 1,724 to 1,645. About two thirds of the total volume was delivered at anchorage.

GAZPROM NEFT

Construction completed of Russia's first LNG bunkering vessel

Construction of Russia's first ever bunkering vessel — for natural gas (LNG) refuelling of cargo and passenger ships — is now complete: the final stage of building the Dmitry Mendeleev having involved testing of gas and cryogenic (freezing) equipment, loading systems, and LNG storage and offloading pumps and compressors.* The vessel will shortly begin its maiden voyage towards its fixed berthing in the Baltic Sea.

This bunkering vessel, named after the great Russian chemist Dmitry Mendeleev, will provide ship-to-ship LNG transportation and refuelling at ports throughout the Gulf of Finland and the Baltic Sea — including St Petersburg, Ust-Luga, Primorsk, Kaliningrad and Vyborg.**

*"LNG is going to play a key role in the decarbonisation of maritime transport, in the medium term.*** Thanks to its high environmental and performance features, LNG is set to take a significant market share in sales of marine fuels in international shipping. In successfully implementing Russia's first project to build an LNG bunkering vessel, Gazprom Neft has, effectively, created a new market sector for the country — in marine gas motor fuel — from scratch. This year will see us starting commercial LNG operations in the Baltic region."*



Anatoly Cherner
Deputy Chairman of the Management Board, Gazprom Neft

The vessel is 100 metres in length, 19 metres wide, and can transport up to 5,800 m³ of liquid natural gas. Its Arc4 ice-class reinforced hull means it can navigate one-year-old ice (of up to 80 cm thick). The latest shipbuilding and LNG transportation technologies have been utilised on the Dmitry Mendeleev project, in line with the most recent environmental standards governing maritime transport and LNG refuelling processes. The Dmitry Mendeleev is also environmentally friendly, in that it will be using tank-return gas (TRG or "boil-off" gas) from transported cargo as fuel for its onboard power plant. All LNG-bunkering equipment is fully compliant with MARPOL and ECO-S environmental standards. Its integrated digital system means the vessel can be controlled by just one crew member, directly from the navigation bridge.





General cargo vessel Tharsis with FluidicAL technology onboard ©MPS

BLOWING BUBBLES AND HARNESSING THE WIND

Alfa Laval invests in the development of air lubrication technology and enters JV to develop wind power

Maritime technology company Alfa Laval has announced two separate initiatives intended to save fuel.

It has bought a minority stake in Rotterdam-based Marine Performance Systems which, according to Alfa Laval has developed a "unique method of producing bubbles with fluidics" which it says "is a breakthrough that will reduce fuel consumption by 8–12% at a vessel's normal service speed".

"The use of fluidics creates a larger air layer of superior quality," says Frode Lundsteen Hansen, who founded Marine Performance Systems in 2018 with innovators Pieter Kapteijn and Fulko Roos. "Our FluidicAL technology enables truly effective air lubrication, with immediate environmental benefits and substantial savings for shipowners. Alfa Laval shares our belief that this technology will facilitate the transition to green shipping."

"The investment brings Alfa Laval full circle, since air lubrication technology for marine vessels was first pursued and patented by our founder Gustav de Laval in 1883," says Sameer Kalra, President, Alfa Laval Marine Division. "The technology did not result in any product in his time, but our founder's vision has new importance today. Air lubrication will smooth the marine industry's path to a sustainable future."

According to the two companies, the patented FluidicAL technology requires no structural modifications or vessel recertification, which means it can be used for retrofitting as well as for newbuilds. It is said to be compatible with any vessel size and any fuel type.

The system comprises evenly spaced bands of oscillators under the vessel's hull. Using high-efficiency fluidics, each oscillator produces tens of thousands of microbubbles per second, creating a stable, uniform layer of air that significantly reduces friction between the hull and the water beneath.

The system's ability to operate in various conditions has already been demonstrated at full scale. In late 2020, a pilot installation was made on the general cargo vessel Tharsis, with "excellent results and clear savings over months of operation" according to Marine Performance Systems.

"With our FluidicAL solution in place, M/V Tharsis made 25 controlled runs in loaded and ballast conditions," says Lundsteen Hansen. "As expected, there was a 60% reduction in specific drag over hull's flat

area, which meant considerably less fuel was consumed. Not only was there no impact on stability or manoeuvrability, the sailing was also noticeably smoother."

Meanwhile, Alfa Laval and Wallenius have announced their intent to form a new 50/50 joint venture. AlfaWall Oceanbird will focus on the development and realisation of technology for fully wind-powered vessel propulsion.

AlfaWall Oceanbird will work on an "innovative means of wind propulsion based on telescopic wing sails". The JV partners say: "This solution could reduce emissions by 90% on the largest ocean-going vessels."

"Wind has a key role to play in decarbonising the marine industry," says Peter Nielsen, Business Unit President, Alfa Laval Marine Division. "Together with Wallenius, we will harness this abundant natural force to meet both climate needs and those of maritime business."

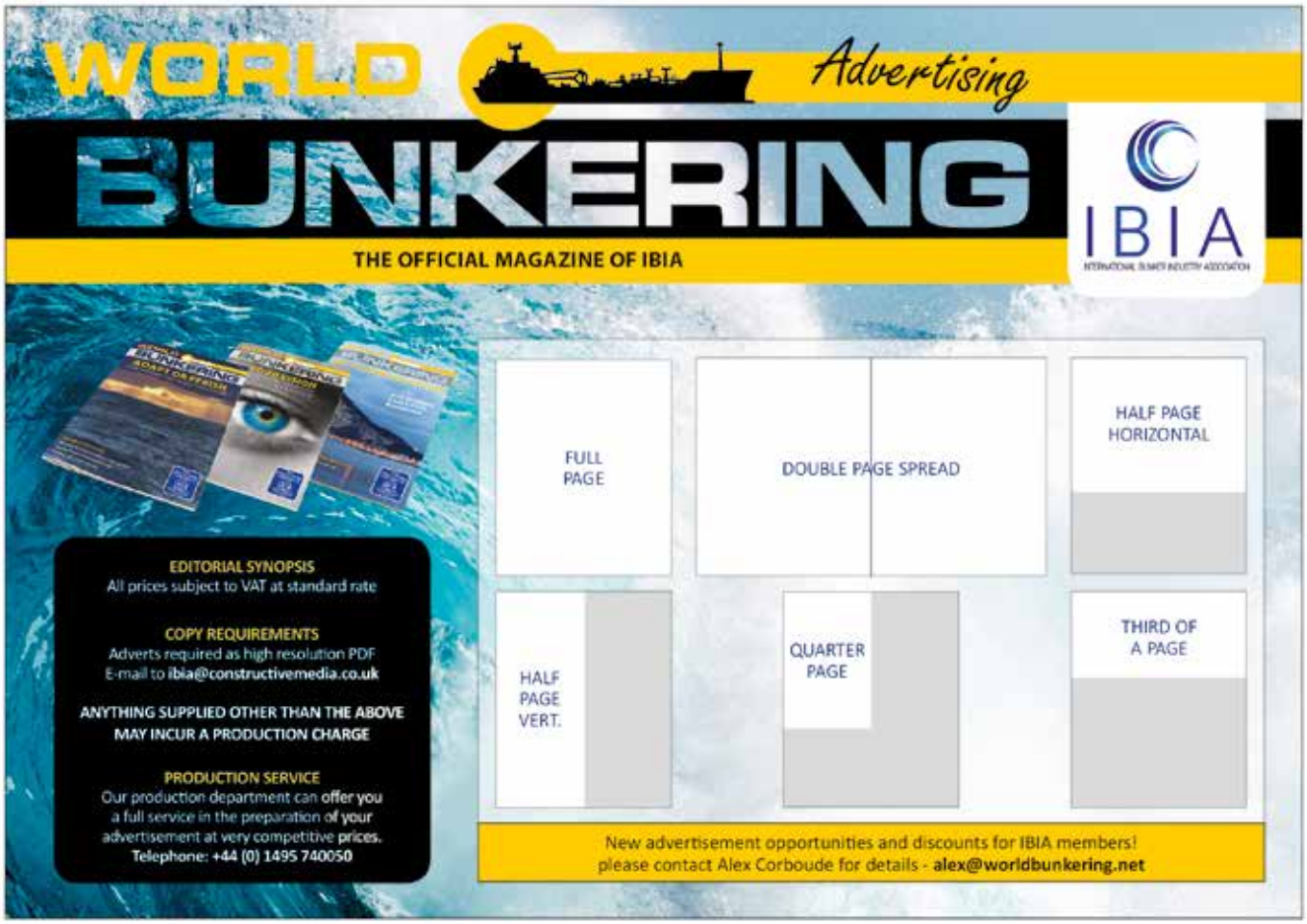
"Oceanbird wing sail technology will be not only an elegant solution, but also a powerful driver of positive change," says Per Tunell, COO Wallenius Marine and future Managing Director of AlfaWall Oceanbird. "Our vision at Wallenius is to lead the way towards truly sustainable shipping, and we are proud to partner with Alfa Laval in reaching it."

The Oceanbird technology comprises an array of rigid wing sails, built from steel and composite materials, that generate forward movement instead of vertical lift. These wing sails will be able to turn 360° to make optimal use of the wind.

According to Alfa Laval, the technology will be valid for any vessel type, but it will be implemented first on a transatlantic car carrier. Able to carry 7,000 cars, the vessel will be 200 metres long and will cross the Atlantic in 12 days when sailing at an average speed of 10 knots.

AlfaWall Oceanbird will focus primarily on the vessel's technical sailing aspects, such as the vessel control system that will steer the wing sail operation.

"The wing sails are up to 80 metres tall and have a telescopic construction," says Nielsen. "Besides adjusting to catch the wind, they can be lowered to pass under bridges, to handle harsh weather conditions or for maintenance. Because they will interact with the hull in a sophisticated way, they will also require intelligent control."



INTEGRATED NOx SCR

WinGD develops space-saving on-engine NOx aftertreatment

Swiss engine developer WinGD says it has launched the first marine two-stroke engine to carry its own NOx abatement solution, "offering dramatic reductions in space requirements and installation costs for shipyards seeking to comply with the strictest IMO NOx emission limits"

The X52 low-speed engine with integrated Selective Catalytic Reduction (iSCR) was launched during a ceremony at Dalian Marine Diesel Co. in China. The six cylinder two-stroke engine, with a maximum continuous output of 11,640 kW, will be installed on a 50,000-tonne tanker built by CSSC Chengxi Shipyard for Japanese owner Kumiai Senpaku.

WinGD Director of Global Sales, Volkmar Galke said: "SCR is a well-proven way of reducing toxic NOx emissions. Making a more compact, on-engine solution has occupied developers for a long time and we're delighted to have reached this landmark with the help of our partners, and to be able to offer big cost savings and even greater ship design flexibility to our customers."

SCR is one of the most effective methods of reducing NOx emissions in line with IMO's Tier III requirements. As with all off-engine aftertreatment methods there are multiple constraints: high exhaust temperatures are required for effective operation; additional installation costs are incurred for auxiliary equipment alongside the engine; and more space is required for additional equipment, meaning less flexibility in ship design and cargo carrying configurations.

The X52 engine will have a high-pressure (HP) SCR reactor integrated on-engine, directly to the exhaust manifold. This means less off-engine auxiliary equipment and piping is required, reducing installation costs and space requirements. The location of the SCR directly upstream of the turbocharger also means higher operation temperatures, conducive to more effective NOx removal. The iSCR-fitted engine also offers low heat dissipation, easy switching between IMO Tier II and IMO Tier III modes, and WinGD's latest automation and control systems with monitoring and predictive diagnostic features. It allows fuel flexibility in that HP-SCRs can still run on high sulphur fuels, which extends the savings to reduced operational costs.

Hydrogen-powered box ship

EDGE Navigation and Ulstein are evaluating the use of a modular hydrogen fuel cell solution to achieve non-fossil propulsion, collaborating with ABB to develop this solution on the basis of fuel cells from Ballard Power Systems. The move follows the two companies' recent announcement that they were cooperating on an X-BOW container vessel concept design

"Hydrogen is emerging as the energy carrier of choice across industries so we are happy to collaborate with ABB and Ballard Power Systems for developing a hydrogen fuel cell modular solution to the designs currently being developed by Ulstein Design & Solutions AS. Developing a new efficient design for container vessels incorporating the ULSTEIN X-BOW® will facilitate the transition to green energy propulsion for container ships. At EDGE Navigation we have the ambition to bring economic and scalable non-fossil fuelled container ships to the market by 2025 and with Ulstein's innovative approach we will have the flexibility in design to adapt the vessels to the charterers' choice of fuel," says Jakob Tolstrup-Møller, Managing Director - CEO at EDGE Navigation.

Jesper Themsen, CEO of Ballard Fuel Cell Systems Europe A/S, noted: "Our PEM fuel cell systems offer a zero-emission solution with a particularly strong value proposition for medium- and heavy-duty motive applications, including marine vessels, buses, trucks and trains. We are excited to work with ABB in addressing requirements of the marine industry, as evidenced by Ulstein and EDGE Navigation's decision to use Ballard's fuel cell system for the X-BOW container vessel following DNV approval of the system".

"In this phase of the concept development for the future, green X-BOW container vessels it is important to cooperate with forward-thinking players," says commercial director at Ulstein Design & Solutions, Lars Ståle Skoge.

Fuel consumption methodology

Eleven organisations including ZeroNorth, Cargill, UltraBulk and Western Bulk have started collaborating to create new methodology for assessing fuel performance model accuracy.

A working group formed earlier in 2021, tasked with taking advantage of new digital technologies to unlock even more precise fuel consumption predictions, delivering real knowledge and insight, and further enhancing vessel optimisation. Following the most recent working group meeting, a draft 'Tier 1' benchmark is now ready to be tested in the market to gather feedback.

Fuel consumption models are generated from an underlying mathematical formula that considers a huge range of parameters, such as the deadweight tonnage of a vessel, its width, engine type, draught and power.

Maritime technology company ZeroNorth says that assessing the relative accuracy of these models is vital to ensure that any optimisation decisions are based on the reality that a vessel faces at any given moment, and in a range of conditions.

The working group will soon release and begin to test this new standard, which will enable owners, ship managers, operators and charterers to assess the accuracy and bias of their current fuel consumption models, before incorporating feedback in future iterations.

Søren Meyer, CEO, ZeroNorth, says: "Once finalised, this benchmark will enable our industry to standardise how it measures for vessel fuel consumption. It's also happening at exactly the right time. Digital solutions will be vital to underpin our sector's decarbonisation efforts, so it's important that we understand if fuel consumption models are accurate enough for voyage optimisation. "The potential to accelerate our collective efforts to cut costs and reduce emissions is massive, so we look forward to more fruitful collaboration with the working group."



WinGD's X52 with integrated SCR©WinGD

Bunkering in the Ports of the Sultanate of Oman

BRIDGING THE GAP FOR GLOBAL GOOD



We are "LICENSED" physical suppliers of LSMGO, VLSFO 0.5%s, & RMG 380 3.5%s as Bunker to 5 Major Oman Ports with support of MARAFI ASYAD (Pot Sultan Qaboos, Port Khasab, Port Suwaiq, Port Shinas) & DUQM PORT AUTHORITIES (Port of Duqm)

With IMO 2020 Implementation, NIMR INTERNATIONAL is at the forefront as Physical Bunker supplier in OMAN ports. We offer value additions to our services and to our products which makes us competitive in the marketplace. We are taking advantages of providing our clients unique and customized supply and services that suits their requirements whether in the port or at the anchorage bunker supply. Being a local player, we have the advantage to explore and develop our market prospects, establishing good business relationships and identifying strategic alliances.

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Seeb | Muscat | Sultanate of Oman



NYK Line's first deep-sea LNG-fuelled PCTC, Sakura Leader © NYK

ENERGY DENSITY OF FUTURE FUELS "COULD BE KEY"

Pro-LNG lobby SEA-LNG argues accurate comparisons of energy density are as vital to decision-making as like-for-like full lifecycle GHG comparisons of future fuels

Industry coalition SEA-LNG says it believes that greater understanding of the comparative pricing, vessel performance and procurement of marine fuels is required to avoid costly mistakes as companies plan their decarbonisation pathway.

The coalition reports it has examined the individual capabilities and requirements of low emissions 'future fuels', including the impact that fuels' energy density has on newbuild and retrofit investment decisions, on the size and cost of fuel storage systems, on available cargo and passenger space, vessel design, deadweight tonnage and on fuel purchasing for operators and owners.

The energy density of a fuel — measured in either volumetric energy density or gravimetric energy density is, SEA-LNG asserts, frequently overlooked due to 'legacy' fuel comparison methodologies. This is where like-for-like comparisons based on unit volume or weight alone do not take a fuel's real energy value property into account. With an influx of new fuels coming into the market, evaluating fuel performance and price by metric tonnes is no longer fit for purpose without the correct context. This is because the energy density of fuels will vary depending on their type and energy properties.

Volumetric energy density needs to be considered when looking at vessel investment decisions. The less storage space required for fuel means more space will be available for cargo. Looking ahead, when fuels such as green synthetic LNG and green ammonia become available from renewable energy sources, volumetric energy density will be important to ensure owners maximize the performance and value of their vessel investments. The lower energy density will have an even bigger impact on vessel design, deadweight tonnage, cargo volume and passenger space.

Liquefied ammonia, for example, has approximately half the volumetric energy density of synthetic LNG and therefore requires twice the storage capacity. In addition, the size and cost of the storage systems is affected by factors such as insulation and containment for cryogenic liquids, containment pressure and critical safety requirements. This will likely mean less cargo capacity and the need to plan for variety of design implications.

SEA-LNG argues in a statement: "Gravimetric energy density is how much energy a fuel contains in comparison to its mass. This measure is critical when comparing the energy costs of different fuels. When buying fuel, the transaction is really about buying energy to propel the ship and power any auxiliary operations. Understanding how much energy you are buying is therefore an essential component of the bunker transaction. LNG offers a lower energy cost compared with traditional marine fuels. When compared with VLSFO, LNG's energy cost per tonne starts with a 20% advantage because it contains 20% more energy per tonne."

Wärtsilä's John Hatley and Chair of SEA-LNG's Investment Working Group said: "Understanding the different physical properties of current and future marine fuels is critical for the industry to make the right investment and fuel procurement choices. Getting it wrong will be costly. We need to understand and standardise the methodology now, so that the industry can start basing its fuel comparisons on a level baseline."

Peter Keller, Chairman, SEA-LNG said: "We must be clear on how fuel composition, pricing and performance measures are calculated. Similar to the need for like for like comparisons when considering the full lifecycle analysis of future fuels, unless energy density comparisons are made accurately, we will continue to see a distorted picture. This can seriously skew vessel operating forecasts and is an obvious concern when considering newbuild and infrastructure investments. Ship owners and operators must have accurate and valid information to support shipping's decarbonisation pathway."

Fuel tanks for big box ships

French LNG tank specialist GTT has received an order from Korean shipyard Samsung Heavy Industries (SHI) for the fuel tank design of five LNG-fuelled 15,000 TEU container vessels on behalf of the Asian ship-owner Seaspan Corporation, the world's largest independent owner and operator of container ships, a wholly owned subsidiary of Atlas Corp and the Israeli charterer ZIM.

The 12,000 cubic metre tanks will be fitted with the Mark III membrane containment system. They will be capable of being converted to store ammonia.

The vessels will also be fitted with the GTT digital platform for monitoring and optimising their operational performance and their environmental footprint. They are scheduled for delivery late 2023 to early 2024.

Philippe Berterottière, Chairman and CEO of GTT, declared: "This first collaboration on LNG fuel business with our long-time partner Samsung Heavy Industries, for the ship-owner Seaspan and the charterer ZIM, is a major milestone for GTT. We are particularly proud that leading shipbuilding and shipping companies recognise and choose GTT's innovative solutions. The ammonia compatibility of the ordered vessels offers flexibility and demonstrates GTT's continued commitment to protect ship-owners investments in a context where they have to constantly adapt to evolving environmental regulations."

LNG retrofits approved

UK-based ship repair and retrofitting group Newport Shipping has gained approval-in-principle from DNV for its low-cost LNG retrofit concept for VLCCs and Capesize bulkers as it targets this emerging market.

However, its managing director, Lianghui Xia, believes collective action is also needed to facilitate the shift to LNG through measures such as tax incentives for such conversions, wider bunkering access, and lower production and delivery costs for the fuel from energy companies.

"Apart from agreeing on the optimum fuel option, the speed of implementation of the environmental agenda will be governed by financial metrics," he says.

SGMF's LNG safety guidance

The Society for Gas as a Marine Fuel (SGMF) has published two new guidelines to improve the safety of LNG-fuelled ships. The documents are intended to assist greater standardisation in crew competency and vessel design.

SGMF's Operation of ships with Liquefied Natural Gas (LNG) – competency and assessment guidelines define the skills required for any party involved in the preparation, storage, handling and use of gas as a marine fuel. The guidance can also be used by organisations developing training in these competencies.

Ray Gillett, General Manager, GTT Training and Chair of SGMF Working Group 14 said: "The use of LNG as a fuel on marine vessels is expanding quickly. To ensure that these vessels are operated safely and efficiently it is important that crews fully understand what they are dealing with. These guidelines provide a basis for operators and training organisations to implement the necessary training to achieve that aim."

In addition, a new Technical Guidance Note makes recommendations on the best locations for bunker manifolds or bunker stations on gas-fuelled ships. The guidance complements existing SGMF documentation on manifold arrangements and is intended to promote compatible bunkering operations across a widening range of bunkering facilities and installations.

Bob Kamb, a member of SGMF Working Group 6.5 and formerly Manager, LNG Services ABS Group Consulting Inc, said: "Seafarers frequently complain that ship designers don't have to sail the ships they build. This guidance alleviates that complaint by providing a decision support framework for optimizing bunker manifold location. This is a useful tool resulting in safer, easier to implement and more efficient LNG bunkering operations."

Both publications were prepared by working groups comprising SGMF members. They, along with an extensive library of other guidance, are available as part of SGMF membership.



Newport Shippings LNG retrofit concept for the Capesize vessel class © Newport Shipping



FUJAIRAH NATIONAL GROUP (FNG)

Fujairah National Group (FNG) is one of the leading, diversified business entities located in the Emirates of Fujairah, on the East Cost of United Arab Emirates

Structured into Eight operational divisions - Construction, Real Estate, Healthcare, Education, Oil Storage, Aviation, Trading, Services and Hotels. The group maintains a decentralized approach, giving individual businesses flexibility and versatility to maintain a competitive stance which benefits employees, providing a clearly defined work culture wherein individuals are empowered with authority and responsibility for their work. The success of FNG is attributed to the proactively managing changes, whilst upholding the values of integrity, excellence, and social responsibility.

Entrepreneurship and rigorous customer focus has enabled the FNG Group to grow its business by responding to the ever changing needs of the customers and societies in which it operates.
We are committed to offer customers, an unrivalled choice of product and services with exceptional standards.

Gulf Petrol Supplies LLC is 100% owned by FNG, which is owned by Fujairah Ruling family members and is part of a larger entity. Within a short span of time, GPS Bunkers has established its reputation as a service-oriented company, with a broad knowledge of the bunkering business, particularly in the ports of UAE along with Indian Sub-continent, Sri Lankan Ports and across an array of Global ports.

Our specialized knowledge of physical bunker trading along with B2B business, gives us an edge to dedicate our attention in building and maintaining solid relationship with our customers and through these collective efforts, we consistently endeavor to create value for our customers, driving the chain of conducive relationship with them.

We operate and function in one of the busiest ports of the world as a physical distributor, as well as a reseller of global marine fuel, with a strong base in Fujairah, always guaranteeing high quality products and elite services. Along with handling of bunkering and cargo trading of fuel oil & marine gasoil in the port of Fujairah, Khorfakkan & Kalba, we also cater to onshore gasoil retailing. GPS has its owned and controlled infrastructure, which includes oil storage facilities and fleet of barges, which provide an edge over any other market players. These core competencies along with our commitment to excellence, provides us a very strong foundation for delivering immaculate services and support for all our customers across the regions.

These services of ours are backed by years of expertise and knowledge in these areas. Endeavoring always to provide the utmost professional and economical solutions for meeting marine fuel needs, along with the best local knowledge efficiently.

Gulf Petrol Supplies also holds a 60% stake in GPS Chemoil Storage Facility, a joint venture between Gulf Petrol Supplies and Glencore in Fujairah.

With a total capacity of 700,000 CBM the GPS terminal provides storage facilities for the whole range of petroleum products. This Oil Terminal is a state-of-the-art terminal, with topmost advanced technologies, wherein the tanks are equipped with heating systems, blending facility with ejector nozzles and can handle all qualities of Fuel Oil. GPS recognizes and has always embraced the importance of taking the long view.

Our business model, strategies and growth plans are driven by a clear vision of the role we aspire to play in creating energy for a better world.





LISBON AND SINES FOR BUNKERS ONLY CALL

Lisbon and Sines are able to offer special conditions for bunkers only call

Calling Lisbon represents a short deviation, it is a sheltered port with protected anchorage (inside port limits) during the whole year for safe bunkering by barge. Draft restrictions – 14 m wp Calling Lisbon for bunkers only gives our clients the opportunity to do other activities without extra costs, namely changing crews, loading spare parts, food and water, lubricants or making small repairs, with all the resources of an European Capital.

A few miles south of Lisbon the deep waters Port of Sines can receive for bunkers only call almost all type of vessels.

Clients can find in this port the particular advantage of being able to berth the ship with no extra costs if weather and /or sea conditions are not the safest for anchorage supply.

Contact the Galp bunkers team for further details.
+351 217240 654 | +351 217240 799
bunkers@galp.com





GIBRALTAR PORT

Continuing to Deliver as a Centre of Maritime Excellence

The unprecedented times we have faced with the COVID19 Pandemic have proved very challenging to the maritime industry across the board. But, it has also served to reinforce the position of service providers to the industry. Gibraltar Port is proud of its performance during this time, where it has been able to keep providing services in critical sectors as part of its objective to facilitate and support international trade.

Gibraltar has been one of a few ports to remain fully functioning throughout the pandemic with bunkering activities and other marine services continuing as normal, albeit with additional strict measures implemented to avoid transmission of the virus to both the local community and visiting vessels. Gibraltar's proactive stance in offering the maritime industry options, particularly in the crew change scenario, during the pandemic has been welcomed and recognised by the global shipping industry.

At the beginning of 2020, Gibraltar had welcomed five cruise ships before COVID surged around the world and in common with most ports around the round, Gibraltar had to close its doors to passengers. However, Gibraltar has continued to handle technical calls to allow companies to conduct crew changes and ensure their vessels had the fuel and stores necessary to operate safely, while idling.

As Gibraltar now emerges from the pandemic and cruise companies look at reduced itineraries Gibraltar is one of the few ports ready to welcome back passengers and in fact the first passenger cruise call took place recently. Aside from many of the physical protocols that will remain in place, if passengers and crew have either a valid PCR or lateral flow test taken up to 72 hours before arrival, they will be able to disembark and visit Gibraltar. The Government will continue to talk with all the leaders in the cruise industry in its efforts to resume more services to Gibraltar.

One very important aspect for the port and for cruising too, which must not go unnoticed, is that we are now able to supply LNG fuel to cruise ships. Many cruise ships are now LNG powered and LNG bunkering is now in position and this shows Gibraltar Port's commitment to a cleaner and more sustainable environment.

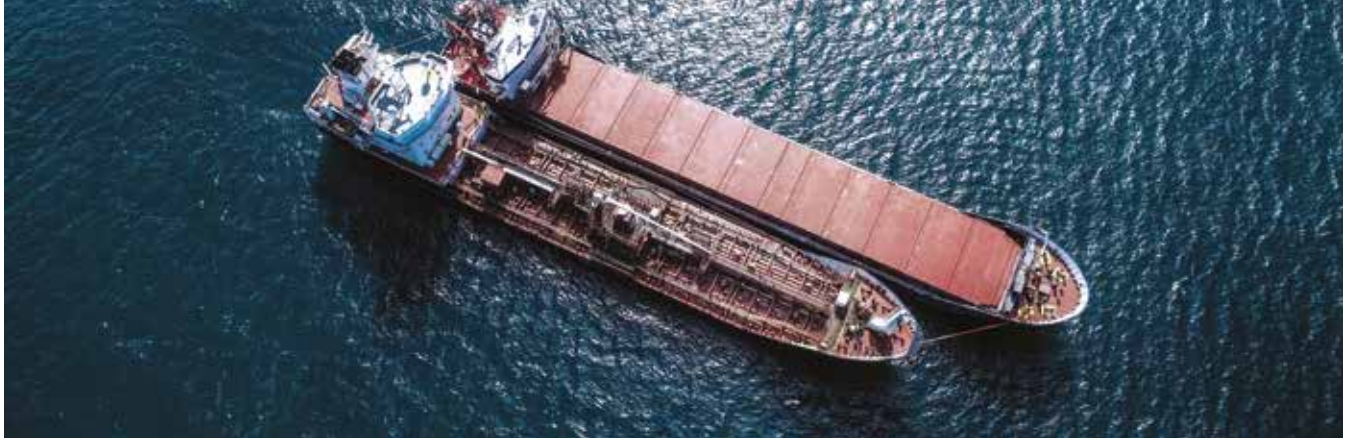
With Shell now fully licensed locally to deliver LNG bunkering in Gibraltar we are already seeing encouraging activity in this market. Gibraltar's position is one of leading the way in supporting the change-over to this fuel, which will significantly improve the environmental performance of shipping and is of paramount importance, and the Gibraltar Government is delighted with the progress and the keen interest that this is generating for Gibraltar Port.

Gibraltar will also be hosting the next Maritime Week Gibraltar event later this year taking place between the 8th and 12th November. The plans are that this will be a physical event and in partnership with Petrospot is being designed to showcase and promote Gibraltar's thriving maritime sector to a wider international audience with the aim of driving more maritime related business into Gibraltar and will follow on from the very successful inaugural event in 2019.

The Maritime Academy also continues to grow with the University of Gibraltar offering a BSc Maritime Science degree with cadetships as well as Maritime technical skills training to Gibraltar based individuals, as well as the Maritime industry internationally. The University of Gibraltar is the first and only university in Europe, outside of the UK, to have obtained standalone direct approval from the UK Maritime and Coastguard Agency (MCA) to run the entire Maritime Science programme, including all examination, just another example of Gibraltar maintaining its pedigree as a 'Centre of Maritime Excellence'.

Despite the global upheaval to the shipping industry brought about by the COVID19 pandemic Gibraltar Port has continued on mission to remain a Centre of Maritime Excellence within the Western Mediterranean.





BUNKER ONE

Bunker One Gulf of Mexico shows stamina in the constantly changing supplier landscape

Since established in 2018, Bunker One Gulf of Mexico has been a leading offshore supplier in the ever-changing supplier landscape in the area. Although the market has seen major challenges in recent years, Bunker One has been determined to implement and execute while offering the best service to its customers.

This business is not for the faint of heart

Unlike other bunker locations, where companies have been able to consolidate their position on the market, the Gulf of Mexico has been fluctuating with several entries and exits over the years.
Offshore is an intricate, specialized operation with vessels frequently sailing over 20 hours between weather locations. It requires an expert physical supplier with infinite resources to be successful for the long-term in this industry.

"To really be competitive in these markets, and especially offshore, you need to have the right tools in place to be sustainable, both on the sourcing side, the capital side, and the operational side." – Georgia Kounalakis, the Managing Director of Bunker One Gulf of Mexico, says.

In such a volatile environment, Bunker One has not only maintained but further strengthened its lead. The company established a fully integrated supply platform, which includes the BOSTCO terminal in Houston and supports the safe and reliable resupply from our larger vessel, MT FURUHOLMEN which is operating offshore.

We stand by our product

Right from the beginning, providing high-quality solutions, specialized delivery, and extensive customer support has been the focus of Bunker One. As the company strives to meet and exceed the expectations of its top tier tanker operator clients and comply with the highest industry-recognized standards, Bunker One has invested in a higher viscosity product, and an additional layer of testing for quality after the fuel leaves the tank. Bunker One also made the strategic decision not to engage in very extreme or creative blending, instead opting to pay the premium to secure a level of sensitivity around TSP.

We consider our customers as partners

Bunker One takes pride in the close relations the company has built with its clients. Considering that reliability and credibility are cornerstones of developing a long-term partnership, Bunker One is committed to fulfilling its promise on delivery even in the face of weather delays and logistical challenges.
By the nature of being an independent physical supplier, Bunker One is ready to offer solutions in this volatile market and flexible, tailor-made services created around the customers' needs.

We have taken the pain to support our customers

Last year has been challenging for most businesses, and bunkering has suffered complete demand devastation in an already strained market due to the Covid-19 pandemic. Despite the unfavourable circumstances, Bunker One stood firm in its commitment to provide the best supply options to its customers and to be there to support them through these challenging times. As a result of the company's versatility, Bunker One could adjust its fleets when the service required.

Georgia Kounalakis, the Managing Director of Bunker One Gulf of Mexico, adds, *"Bunker One has done an excellent job of continuing to support the market even though the market has not been a lucrative option for us. We have taken the pain to ensure we hold our position and support our customers."*

Bunker One is optimistic about the future and ready to continue supporting its customers while also open to exploring opportunities that arise in this ever-changing market.



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Bunker One

FUELS AND LUBRICANTS

THE LITMUS TEST IN DECARBONIZING THE SHIPPING INDUSTRY

Engine lubricants must handle the potential issues related to each fuel mix available to the ship operators today. They must also provide a level of qualification in the reliability of the emission treatment systems that are coupled to the engine and respond to the needs of the new fuels of tomorrow. Nikolaos Kotakis, Technical Director Lubmarine at TotalEnergies sheds light to the complex world of sustainable shipping and clean engine technology

'Emissions' is the buzz word across the shipping industry this decade and is likely to be so well in to the next. When we look at emissions, the IMO 2020 sulfur cap, which limited the sulfur in fuel oil used on board ships operating outside designated Emission Control Areas to 0.50% m/m (mass by mass), was a significant regulation and global movement to reduce air emissions from shipping.

Since its implementation on 1 January 2020, one of the biggest takeaways has been the increasing importance of engine cleanliness. This has been confirmed by a number of sea trials which deem it essential in this new operating regime. It requires a high level of in-depth technical awareness, support and solutions for all ship operators to ensure that they implement the right lubricants and fuels strategy – and that they are using the right combination of solutions to appropriately operate their engines. It is one of the reasons why our technical experts are focused on ensuring that all our customers use the right lubricants and monitoring tools that deliver optimal engine performance and engine cleanliness.

What is clear, however, is that the shipping industry will continue to face changes with initiatives that dive further into energy efficiency, emissions and greenhouse gas targets, as industry's knowledge and experience of new fuels evolve.

In line with TotalEnergies' net-zero climate ambition, our team from Lubmarine at TotalEnergies and our colleagues at TotalEnergies Marine Fuels are developing multiple low- and zero-carbon marine fuel and lubricant solutions to help advance decarbonisation across the industry. Yet, we strongly believe that the sector should act now and not wait for these technologies to be commercially ready.

In terms of fuel options to reduce the environmental footprint of maritime transport, compared to conventional fuel, LNG is presently the cleanest available marine fuel at scale and paves the way towards carbon-neutral bioLNG.

As one of the first movers in the supply of marine LNG, TotalEnergies Marine Fuels has actively invested infrastructure in Rotterdam, Marseille and Singapore to serve shipping customers that have chosen LNG as the cleaner fuel choice. Their goal is to extend the Company's LNG supply chain across strategic bunkering hubs.

With increasing demand for LNG bunkering and an accelerated of growth that is now seen in the number of new LNG-powered vessels on the order books, clearly the shipping market has confidence in LNG – in its infrastructure, practicality, availability and flexibility. TotalEnergies anticipates that global LNG bunkering demand may rise to 10Mt per annum by 2025 and represent more than 10% of the bunkering market in 2030.

Likewise in the area of engine lubrication, we all must anticipate the demand and be ready to propose sustainable solutions in engine lubrication that will most likely be flexible enough to run on several types of fuels. At Lubmarine we continue to strengthen our work with the OEMs and the marine lubricants supply chain partners on how to best develop new formulations of cylinder lubricants and Trunk Piston Engine Oils appropriate to the new fuels of the future. Success has been achieved in qualifying products such as TALUSIA UNIVERSAL, which is developed using a unique chemistry that helps the neutralization process and the control of engine deposit growth in the pistons, rings, and liners. We received a No Objection Letter (NOL) for Talusia Universal (BN57) by WinGD for use with all fuels with a sulfur



content 0.00%S to 1.50%S (including LNG and Dual Fuels), following rigorous tests carried out on two different vessels fitted with W6X72 engines, and by MAN Energy Solutions for use with VLSFO fuels containing <0.5%S and residual fuels with sulfur content up to 1.5%.

In this new, low-sulfur era, the Base Number (BN) of the cylinder oil, which has traditionally been an indicator used to quantify acid neutralization capability, will be only part of the equation. New refinery processes and fuel blend stocks used to produce VLSFOs can only be tackled effectively with innovative chemistries. While existing cylinder lube oils are designed to ensure reliability of engines running on today's conventional low sulfur fuel oils, it is reasonable to expect increased research and development into new lubricants that will be called to handle the new alternative fuels of the future.

As the experience of the use of these new fuels grows, we will continue to develop new formulations of engine lubricants appropriate to these fuels and their application. To this regard, we will not only consider the sulfur content of the fuel but also the engine characteristics, the emission control and energy saving systems, as well as the operating conditions so that we design solutions to help further reduce CO_2 emissions.

Low and zero sulfur fuels bring along new lubrication challenges and it will take a new lubricant design approach to face them. It is one of the reasons why we believe that low ash chemistry can be the basis for the next generation of engine oils, particularly for dual-fuel engines or diesel engines fitted with selective catalytic reduction systems. We have pioneered this strategy with TALUSIA OPTIMA – a product that uses Ash-free Neutralizing Molecules. This has been a unique and patented technology that provides fast and effective acid neutralization without mineral deposit build-up from the most demanding two-stroke engines. This revolutionary lubricant was developed through intensive R&D at our renowned Solaize Research Center (CReS).

Looking to the future, with engine technology continually evolving, we need to remain agile. We work to find efficient and cost-effective solutions to the challenges ship owners face in their way up to 2030 and 2050. Everyone has a part to play in the transition to a cleaner, better performing industry. It is a period in our time which represents incredible evolution through fuel innovation and engine oil advancement, and it's absolutely exciting.



Nikolaos Kotakis, Technical Director Lubmarine at TotalEnergies

GOIL COMPANY LIMITED (GOIL)

GOIL Company Limited (GOIL) is a Public listed Oil Marketing firm

The company is ISO 9001:2015 as well as ISO 14001:2015 Certified. GOIL has as its subsidiaries, GO Energy, a Bulk Distribution Company Limited and GOIL Offshore Limited to cater for its upstream business.

GOIL is currently the market leader in additivated premium quality fuel (Super XP RON 95 and Diesel XP) and has the largest and growing retail network in Ghana with over 400 stations. The marketing arm is represented in seven zones country-wide. GOIL also supplies Mining Diesel to mining firms in the country and the leading LPG marketer in Ghana.

GOIL presently supplies MGO ex-pipe and RTW from three main ports, Tema and Takoradi Ports as well as the Sekondi Naval Base and markets premium Lubricants some of which are blended locally.

The rest are imported. GOIL also supplies aviation fuel to major airlines.

www.goil.com.gh



AMA RESEARCH & DEVELOPMENT

AMA Research & Development (S) Pte. Ltd.

Our laboratory in Singapore is fully accredited with ISO/IEC 17025:2017 by the Singapore Accreditation Council for the analysis of marine residual fuel and marine distillate fuel oil

Our laboratory in Singapore is fully accredited with ISO/IEC 17025:2017 by the Singapore Accreditation Council for the analysis of marine residual fuel and marine distillate fuel oil.

Our laboratory is fully equipped to test bunker samples in accordance with the requirements of ISO 8217/2005, ISO 8217/2010, and ISO 8217/2017, and this therefore meets the needs of most vessels. It is staffed by highly experienced laboratory technicians, manager and scientists, and is capable of testing large volumes of samples as well as individual samples for dispute resolution.

Marine fuels are complex mixtures of various organic and inorganic components. Their quality and performance greatly depend on the composition of the fuel blend, and occasionally unsuitable components may be introduced along the supply chain. Poor quality, contaminated, or off-specification bunker fuel can cause problems with the ship's main and auxiliary machinery where operational difficulties or even damages may result.

Off-spec fuel could also lead to problems with PSC, and not only with respect to sulphur content. It is understood that the California Air Resources Board may start testing samples of distillate fuel for compliance with the carbon residue levels of ISO8217, specifically, they will use ISO10370, an analysis standard for which we are accredited.

AMRAD provides a comprehensive approach for the investigation of fuel quality disputes using a range of additional tests to cover a wider scope beyond ISO 8217 parameters including:

- Stability / Compatibility by Spot Test
- Asphaltene Content
- Xylene Equivalence
- Toluene Insolubles / FTIR
- Fatty Acid Methyl Ester (FAME) by FTIR
- Analysis of Sludge/Residue/Debris samples by combining various analytical techniques

This brings a new dimension to the resolution of bunker fuel oil disputes, and AMRAD provide an unrivalled combination of in-house testing, as well as scientific and engineering expertise.

When disputes arise AMRAD will be pleased to host the interested parties to witness the opening of samples as well as the full testing procedure when so required.

AMRAD also provides in-house training to interested parties including ship owners, charterers, brokers, insurers, and other experts wishing to broaden their knowledge of fuel oil testing.

For more information, please contact us at:
AMRAD@andrew-moore.com
Tel: +65 6438 7891



DIARY

6 – 7 OCTOBER 2021

CARBON FORWARD 6TH ANNUAL CONFERENCE

ONLINE

This conference focuses on the goal of improving companies' understanding of environmental markets with an emphasis on emissions trading, globally. Since our inaugural conference in 2016 we have become the organiser of Europe's leading and largest carbon markets conference.

For more information: https://www.carbon-forward.com/

26 – 28 OCTOBER 2021

MARITIME WEEK AMERICAS

PANAMA

Maritime Week Americas 2021 returns to Panama with a week of key maritime events, including the MWA Conference plus top-level training and other specialist training. MWA remains the largest and most popular bunkering conference in the Americas.

For more information:
https://www.petrospot.com/events/mwa2021-panama

2 – 4 NOVEMBER 2021

IBIA ANNUAL CONVENTION 2021

ONLINE

The IBIA Annual Convention is the Association's flagship conference. Every year IBIA conducts the most anticipated conference in the industry. This year will gather top leaders from across the world to spark dialogue, share insights, and transform conversation into action. IBIA will arrange a dynamic series of sessions around diverse topics which will cover a broad spectrum of issues, with a specific emphasis on the future challenges facing the Bunker and Shipping Industry.

For more information: www.ibiaconvention.com

8 - 12 NOVEMBER 2021

MARTIME WEEK GIBRALTAR

GIBRALTAR

Maritime Week Gibraltar is a major biennial event designed to showcase and promote Gibraltar's thriving maritime sector to a wider international audience.

Strategically located at the crossroads of the Mediterranean and Atlantic and of Europe and Africa, Gibraltar is the most important bunkering hub in the Mediterranean but also provides a range of key maritime services, from ship repair and agency to hull cleaning and surveying, from major cruise destination to superyacht haven, from thriving financial and legal centre to preferred crew change location. Through a range of events, including a Flagship Conference, training courses, seminars, B-2-B meetings, technical site visits, an exhibition and some spectacular networking, Maritime Week Gibraltar will demonstrate the advantages that make Gibraltar the rock-solid partner for global shipping.

For more information:
https://www.petrospot.com/events/MWG2021

18 – 19 NOVEMBER 2021

MAURITIUS CONFERENCE AND TRAINING

PORT LOUIS, MAURITIUS

The Mauritius Ports Authority alongside IBIA and CELERO will host a 1 day Bunker Conference and a 1.5 day in person intensive training course. The training course will cover several topics ranging from IMO regulations, Fuel Quality, and best practices for the usage of VLSFO. Joining IBIA in the training, AMSOL (African Marine Solutions) will run an afternoon session taking a look at the essential skills and procedures needed for maritime emergency preparedness.

For more information: www.ibia.net

1 -2 DECEMBER 2021

MEDITERRANEAN BUNKER FUEL

VIRTUAL CONFERENCE

ONLINE

With COVID-19 acting as a larger disruptor than IMO 2020 in the bunker market, it is not clear whether the true impacts of the Sulphur cap are visible or will be visible until the market recovers. Following 2020, the bunker industry must balance the needs for recovering out of the COVID-19 induced demand destruction with investing in the shift to low and zero-carbon fuels for the next regulatory milestones. As IMO 2020 moves in the rear-view mirror, the market must look ahead to the next IMO target of meeting at least 50% lower greenhouse gas emissions by 2050 compared to 2000. How can the bunker industry adapt and be part of the transition toward low and zero-carbon fuels? Will lower emission fuels be the only step for suppliers and what is the fuel of the future and how will we get it in mass?

For more information: https://plattsinfo.spglobal.com/2021_Med_Bunker_Virtual_Conference.html

All dates were correct at time of going to print but may be subject to change, please review the related websites

WORLD BUNKERING

Q4 2021... NOW OPEN FOR BOOKINGS

Q4 2021

SPECIAL FEATURES:

Bunker Traders

Are bunker traders being squeezed by the oil majors and the independents? Does it even make sense to regard trading as sector by itself rather than a part of integrated bunker logistics? We take a look.

Alternative Fuels

It is now generally agreed that new fuels will have to take over from fossil fuels within a frighteningly short time frame. We survey the scene as teams around the world work on a range of potential alternatives, including ammonia, hydrogen and methanol.

Fuel Additives

The development of VLSFO has posed new challenges for ships' engineers and machinery manufacturers. However, it has also opened up a new market for additive producers.

GEOGRAPHICAL FOCUS:

Northern Europe

The EU is considering a raft of regulatory measures to reduce GHG emissions from shipping, including potentially removing the tax exemption on bunker fuels sold for use in Europe, and bringing shipping into the EU ETS. Will this affect the competitive position of the bunker suppliers in the region?

Middle East

This crucial part of the world for energy production remains highly volatile but bunker operations continue. We look at developments around the region's bunkering hubs.

Australia

Our round-up of developments around the coasts of this major bulk cargo and agricultural products exporter.

Regular Features

Russian Update, News, Views, Analysis , Interview, Industry News, Environment, Testing, LNG, Lubricants, Innovation, Legal News, Equipment and Services, Diary, Event Previews & Reviews



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WORLD-CLASS BUNKERING SERVICES FOR OCEAN-GOING VESSELS

IMO 2020 COMPLIANT MARINE GAS OIL AND LUBRICANTS



Takoradi Port MGO Facility



Sekondi Naval Base MGO Facility

GOIL BUNKERING

GOIL supplies Marine Gas Oil (MGO) to ocean-going vessels in Tema, Takoradi and Sekondi. In the provision of these services the Company lays emphasis on Product Quality, Product Availability and stringent Environmental, Health & Safety (EHS) standards.

Our MGO meets the requirements of our esteemed clients in accordance with ISO 8217-2010 fuel standard. GOIL is IMO 2020 Low Sulfur Fuel (0.5% Max) compliant.

TEAM OF EXPERT

GOIL BUNKERING is a team of highly skilled professionals with expertise who work passionately to give you a world class satisfactory service.

QUALITY AND QUANTITY

We don't compromise on the quality of our products. Delivering premium quality and equitable distribution (quantity) is our mantra.

GOIL OFFSHORE TANKER FOR FAST AND FLEXIBLE DELIVERY

You don't have to sweat when you're in Ghanaian waters, GOIL Offshore Tanker is very close to serve you. We are able to guarantee fast delivery and large volumes of fuel with our tanker. We save you time because we know you don't have time for berthing.

EFFICIENT, RESPONSIVE, RELIABLE AND AVAILABLE

You can always rely on GOIL Bunkering for high premium quality fuel. If reliability is your challenge, then that is our drive. We are always on our toes to keep you moving. We are always happy to keep you going.

LONG TERM BUSINESS RELATIONSHIP IS OUR PRIDE

We take pride in personalizing and customizing bunkering. Customers' expectations drive us to always do more and better. Our aim is to establish and maintain long term business relationships. We have a continuous focus on delivering value for money. GOIL Bunkering is the solution to your bunkering needs.

HEALTH, SAFETY AND ENVIRONMENT

We believe that, safety and security don't just happen; they are the result of collective consensus and public investment. For safety is not a gadget but a state of mind. Therefore our team of expert prepares and prevent, they don't repair and repent.

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