

WORLD



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BUNKERING

THE OFFICIAL MAGAZINE OF IBIA

GOING NUCLEAR

IS THORIUM THE FUEL OF THE FUTURE?



INSIDE THIS ISSUE:

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TIME FOR THE NUCLEAR OPTION?

Dear Reader

No, my headline does not relate to the horrible conflict currently engulfing Ukraine and consequently disrupting the global shipping and bunkering markets. And let us all hope those words will never become relevant in that context. It refers to a subject I will return to shortly.

Unsurprisingly, the impact of the war in Europe on our industry is covered in several places in this issue, including in the News section. There you will see IBIA had to take the difficult decision to suspend all services to its Russian members until further notice. Sadly, a knock-on effect of this is that, for the first time for many years, *World Bunkering* will not include a section on Russia from Olga Bogacheva, who has kept us so well informed on what has been going on there for something like 15 years now.

But, even at a time when war is raging in Europe, and coronavirus is once again causing havoc in China and seriously affecting its ability to trade normally, my email inbox is still largely full with press releases about the huge number of developments that are taking place on the road to decarbonisation.

There are so many, in fact, that there is no way all of them can find their way onto *World Bunkering's* pages. However, there was one recent press release that certainly grabbed my attention, to the extent that I have added a slot dedicated to it, nuclear power using thorium. That certainly was not in my mind when I started putting this issue together.

The company behind the initiative, Ulstein, takes the view that thorium is a safe option that could be the silver bullet for the industry as it aims for decarbonisation. I suspect that this view will prove controversial, in some quarters at least. So it might be unwise to bet heavily on going nuclear, but equally it

is a development that deserves following closely.

Another very significant press release almost slipped through the net. When I read a subject line talking about new medium range products tanker approval in principle granted by classification society RINA, I was not expecting to read anything earth-shaking. In fact, it details a process of splitting LNG into hydrogen and CO₂ using steam. According to RINA it has the potential to power the ship entirely on hydrogen, if required – and presumably if the energy costs involved are deemed acceptable. There is the small matter of what to do with the collected CO₂. However, this process is potentially a game changer, allowing continued use of fossil fuel LNG for the foreseeable future. One does wonder how that prospect will go down with some of the green warriors.

This issue once again devotes pages to the main alternative fuels (or alternative approaches as carbon capture is an increasingly viable option) that could take us on the road to decarbonisation.

There is now a bewildering array of options that could take us to net zero carbon. The consensus seems to be that, despite Ulstein's belief it has found the silver bullet, various solutions will end up being appropriate to meet different circumstances.

Given the multitude of alternative fuels now emerging it seems slightly odd that a new study commissioned by the International Chamber of Shipping, and reported in our Environmental News section, finds that R&D is declining and argues for more investment. That of course chimes with the shipping industry's proposal to the IMO for an R&D levy on bunker sales.

However, to return to the here and now, the war in Ukraine impacts very much on the regions covered in this issue's geographical sections. The Eastern Mediterranean and Black Sea are on the conflict's doorstep. We highlight, in particular, how Turkey's bunker suppliers are being affected. Meanwhile increased availability of fuel in West Africa comes just as Russian oil is being largely excluded from the market.

As ever IBIA director Unni Einemo has been exceptionally busy, promoting the industry's interests. Among many other recent commitments, she has been involved in various recent IMO meetings. Unni has, as usual, written an insightful account of how regulations are being formulated, and how IBIA continues to put forward constructive proposals based on the collective expertise of the bunker sector.

So once again we have a packed issue for you and, I hope, plenty of food for thought.

Best wishes

David Hughes
Editor





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Editor: David Hughes

anderimar.news@googlemail.com

Deputy Editor: Unni Einemo

unni@ibia.net

Project Manager: Alex Corboudé

alex@worldbunkering.net

Publisher & Designer: Constructive Media

ibia@constructivemedia.co.uk

On behalf of:

IBIA Ltd, Office 239, New Broad Street House
35 New Broad Street
London, EC2M 1NH, UK

Tel: +44 (0) 20 7417 1803

Email: ibia@ibia.net

Website: www.ibia.net

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CONSTRUCTIVE
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Constructive Media

50 George Street,
Pontypool
NP4 6BY

Tel: 01495 740050

Email: ibia@constructivemedia.co.uk

www.worldbunkering.net





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Office 2001, Saba Tower 1, JLT
DUBAI, UAE
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Fax: 00971 4 4350505
E-mail: bunkers@oil-marketing.com

12 Kithiron Street, Alimos 17455
ATHENS, GREECE
Tel: +30 2109609860
Fax: +30 2109609861
E-mail: bunkers@oil-marketing.com

12 Eu Tong Sen Street, #05-168 The Central,
SINGAPORE 059819
Tel: 0065 6222 4028
Fax: 0065 6222 4027
E-mail: singapore@oil-marketing.com

WEB: WWW.OIL-MARKETING.COM

THREE GOALS

Three main pillars will underpin IBIA's efforts over the next 12 months

Dear Members and Friends of IBIA,

This is my first Chair's letter for the IBIA magazine since I took over as the Chair of IBIA on 1 April this year.

The IBIA Board of Directors and the Secretariat have been very active discussing and charting the Association's goals for the coming term. I personally feel privileged for the opportunity to work alongside knowledgeable and committed professionals as we strive to achieve ambitious objectives in the interest of IBIA's members and of the marine fuel industry at large.

My years as a Strategy Consultant taught me that you should not have more than three goals ... so here you have the three main pillars that IBIA's focus will revolve around over the next 12 months!

Integrity

Integrity will be an overarching goal considering how important it is for our industry to ensure a high level of professionalism and reliability. Shipping is one of the world's most interconnected sectors with private companies interacting with institutions, banks, insurers and many other stakeholders.

While recognising the value and quality of the players in our market, we see the need for increased transparency and ethics. As a first, important, step in this direction, I am pleased to share that we have tasked a working group with updating and strengthening the IBIA Code of Ethics, and we will be reporting on our progress in the coming months.

Licensing and MFM

Building on the focus on integrity, the Licensing and MFM working Group (chaired by Alexander Prokopakis) will continue to be a key part of our efforts, with the clear intent to facilitate the establishment of fair, transparent and consistent rules across the major bunkering hubs worldwide. A survey – launched in collaboration with BIMCO – was recently completed, and it will enable us to better engage with Port Authorities and other stakeholders.

Decarbonisation

Finally, it is clear how decarbonisation will continue to shape the industry for years to come and we are very pleased with the incredible work carried out by our Future Fuels Working Group, chaired by IBIA Vice Chair, Constantinos Capetanakis. We have been able to produce clear and valuable content on all new fuels for the benefit of our members; the next step will be to leverage our "in-house" know-how to provide even more in-depth and actionable analysis.

In addition to our efforts through the Future Fuels Working Group, IBIA is also playing an active role at the IMO, where our Director Unni Enemo takes part in discussions on creating the right regulatory framework to drive the energy transition.

All of the above requires one thing, more than anything else: members' engagement. I encourage you to play an active role within IBIA to pursue a real impact in our industry.

Our organisation plays a major role supporting the energy transition process as well as the introduction of transparent, sustainable and business-friendly regulations. Our ambitious goals can only be achieved through the active participation of our members through their skills and know-how.

Do reach out to any of the members of the Board or to our strong Secretariat, in order to explore opportunities for you to join any of our Working Groups or Regional Boards. We look forward to welcoming you to a passionate and diverse team.

Now that travelling and events have resumed, I look forward to seeing many of you at our upcoming conferences in Turkey (June 2022), Malta (September 2022) and Houston (November 2022)!

Ciao

Timothy Cosulich,
Chair





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CHANGES AFOOT

Is there appetite for change in the marine fuels and shipping industry? There are signs that there is

The IBIA Board of Directors and Secretariat has seen a number of changes recently. Since the last issue of *World Bunkering*, Henrik Zederkof's allotted time as our Chair has come to an end. He showed exceptional drive and commitment to the focus areas he outlined for IBIA in 2020. We are lucky to have another driven individual step into the role; Timothy Cosulich, who became the Chair on 1 April this year. In his first Chair's Letter for *World Bunkering*, he sets out the Association's goals for the year ahead.

Work set in motion two years ago continues. We have set up two out of five planned Regional Boards, one for Asia and one for Africa. This allows issues specific to each region to be more thoroughly examined. Also continuing is a focus on decarbonisation, to ensure our industry understands what's coming and plays a part in necessary changes. Our work on bunker licensing and Mass Flow Meters also continues. A new area of focus outlined by Timothy is integrity, with an initial task to update and strengthen the IBIA Code of Ethics.

Some of these areas are underpinned by the desire for improving transparency in our sector. But what exactly does 'transparency' mean? I think it is about building an environment where stakeholders feel comfortable and confident in their dealings with each other. Confidence that they are treated fairly. It means putting in place mechanisms that help build trust, where good practices are rewarded and bad practices are penalised.

Our Licensing and MFM Working Group has just completed analysis of a joint IBIA and BIMCO survey into industry experiences and attitudes. You can read about the key findings in this issue. Two things stand out to me: The percentage of deliveries associated with disputes about quantity (1.61%) and quality (0.98%) was relatively low, yet a clear majority of respondents were in favour of bunker licensing programmes and MFMs as tools to improve transparency and trust in the bunker supply industry. Respondents included a large share of traders and suppliers, over half of the total, so it isn't just bunker buyers that want this.

When it comes to decarbonisation, I am also witnessing growing appetite for taking steps to get this major transition underway, both in the industry and among Member States at the IMO. The latest IMO intersessional working groups on greenhouse gases (ISWG-GHG) have signalled increasing willingness to develop fuel lifecycle assessment (LCA) guidelines that will take well to wake GHG emissions into account as a basis for new regulatory moves to cut shipping's GHG emissions. At the moment, regulations account only for tank to wake emissions. I am also seeing agreement emerging that the IMO must put a price on CO₂ or CO₂ equivalents, though exactly how this will be done still needs to be worked out. And there is growing support for introducing a GHG fuel standard to gradually increase the share of low carbon or renewable fuels used by shipping; which I believe is a crucial regulatory signal to ensure that there will be demand for such fuels even if the price is high.

There is even willingness among shipping organisations and IMO Member States to push for a net-zero GHG target by 2050, when the IMO revises its GHG strategy

in 2023. This is a huge commitment compared to the 50% reduction agreed in the initial strategy in 2018.

We all know that stakeholders need to work together to help us reach GHG reduction goals. To that effect, IBIA has recently signed a Coalition partner contract with the Global Centre for Maritime Decarbonisation (GCMD), and we hope this partnership will be a positive way of ensuring we're all pulling (or pushing) in the same direction without too much duplication of effort.

I mentioned changes in the IBIA Secretariat. The Regional Manager for IBIA Asia, Alex Tang, left us in April to take up a new position with Intertek Lintec. At the end of April, Noraini Binte Salim left her position as Office Manager for IBIA Asia for family reasons. We are grateful to both for their hard work and dedication to IBIA. As this issue goes to print, we are in the process of recruiting their replacements and look forward to welcoming them to the team.

Unni Einemo,
Director, IBIA
E: unni@ibia.net



IBIA EVENTS PROGRAMME 2022

ONLINE BUNKER TRAINING COURSE		
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	Online at www.ibia.net
MODULE 12 TO PURCHASE	Bio Fuels	Online at www.ibia.net
MODULE 13 TO PURCHASE	Exhaust Emissions	Online at www.ibia.net
MODULE 14 TO PURCHASE	Introduction to LNG Bunkers	Online at www.ibia.net
5 MODULES TO PURCHASE	The IBIA Basic Bunkering Course	Online at www.ibia.net
MAY		
5	IBIA Members Meeting	Online at www.ibia.net
JUNE		
3	IBIA Networking Reception	Piraeus, Greece
15	IBIA Members Meeting	Online at www.ibia.net
22	IBIA: New regional dynamic & the move to a green shipping future	Istanbul, Turkey
JULY		
13	IBIA Members Meeting	Online at www.ibia.net
SEPTEMBER		
13 - 15	IBIA Mediterranean Bunkering & Green Shipping Conference	Malta
NOVEMBER		
14 - 18	IBIA Annual Convention 2022	Houston, United States of America
FEBRUARY 2023		
27	IBIA Annual Dinner 2023	London, United Kingdom

BUNKERING INDUSTRY EVENTS 2022

MAY		
9 - 13	Portugal Shipping Week	Lisbon, Portugal
10 - 12	The International Bunker Conference IBC	Oslo, Norway
23 - 27	Maritime Week Americas	Panama
23 - 25	Argus Green Marine Fuels Conference	Rotterdam
JUNE		
6 - 10	Posidonia 2022	Athens, Greece
20 - 23	Maritime Week Las Palmas	Las Palmas, Canary Islands
OCTOBER		
3 - 7	Maritime Week Americas	Fort Lauderdale, USA
4 - 6	SIBCON 2022	Singapore, Asia
18 - 19	Marine Energy Transition Forum	Antwerp, Belgium
20 - 21	ARACON 2022	Rotterdam, Netherlands
NOVEMBER		
22 - 24	Propulsion & Future Fuels Conference 2022	Hamburg, Germany

**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*

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It consists of 5 modules each lasting just over 1 hour presented by IBIA Board member, Nigel Draffin, the renowned bunker industry expert, Author of 12 books on Bunkering.

The course materials have been peer reviewed by members of the relevant IBIA Working Groups.

The **Online training** course is recorded video content, it is not live. The duration of each module is up to 60 minutes. The modules can be attended as stand-alone modules, however students will gain the best value by taking all five modules in the order suggested. On completion of the course, students will receive the '**IBIA Certificate of Attendance**'.

Nigel Draffin



Consultant and IBIA Board Member



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IBIA BUNKERING CONFERENCES & EVENTS FOR 2022

Have you registered yet for the upcoming IBIA Conferences & Events? Become part of the voice of the industry

IBIA was very proud to support a panel discussion I participated on the 18th of May, 2022 to celebrate the very first International Women in Maritime Day, launched by the International Maritime Organization. An inspiring keynote and stellar panellists came together to discuss why we still see the maritime sector employing approximately only 34% of women, 2% of which in Director roles and when it comes to seafarers only 2% of the more than 1.5 million seafarers globally and share an actionable target list on what needs to be done going forward.

It was hosted by Gina Panayiotou, Founder & CEO, Oceans Arena, Concept Founder, Ocean Arena Stage, with a keynote speaker H.E. Eng. Hessa Al Malek, Advisor to the Minister for Maritime Transport Affairs, Ministry of Energy and Infrastructure UAE. The Panel was consisted of Sofia Konstantopoulou, Global Head, Marketing & Events at IBIA, Founder, GIWA, Guy Platten, Secretary General, International Chamber of Shipping (ICS), Sanjam Sahi Gupta, Maritime SheEO, Director, Sitara Shipping Ltd., Capt Radhika Menon, Sailing Captain with Synergy Marine Group and the Co founder of International Women seafarers Foundation and Sue Terpilowski OBE, Diversity & Inclusion Expert and speaker, Managing Director of Image Line Communications

I stated: 'We are privileged being part of the Shipping industry, this amazing industry and TOGETHER we can make it even greater by supporting gender quality, inclusion and diversity'. Men need to trust women more, and women need to ask for the business.'

Our conferences and events continue to be a platform bringing the global bunkering and shipping industry together for sharing experience, knowledge and networking.

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IBIA Networking Reception Piraeus, Greece, 3 June

The IBIA Secretariat and Board of Directors, hosted and IBIA members only networking event at the unique Marine Piraeus Club with the opportunity for all of us to meet again, in view of Posidonia, this great celebration of shipping that begins a week later.

It was an honour to welcome our local and international IBIA members to our first in person IBIA Members Day preceding Posidonia, the great celebration of shipping the following week.

New Regional Dynamics & the Move to a Green Shipping future Turkey, Istanbul, 22 June

In this one-day conference we will gain first-hand insights and focus on understanding the regional challenges and successes faced in the bunkering and shipping sectors, as well as envisioning/ predicting/ covering

future aspects of the industry. The event will be held in person at the Raffles Istanbul.

The local and international delegates will have the opportunity to hear from a stellar list of panellists who will give their insights about the geopolitical events in the recent months. They will consider how the shipping and bunker industries can cope with the massive disruption that has occurred in global oil, shipping and bunker markets.

This conference is an opportunity to discuss the short and long term impacts that have been particularly destabilising to Turkey, the Black Sea and the Mediterranean. In addition a panel will discuss the Mediterranean ECA proposal that is currently being considered by IMO and its obvious impact on the regional bunker industry. Progress towards IMO's



2030 and 2050 goals and likely further regulation will also be evaluated.

Alternative Fuels will be one of the main topics. Delegates will hear industry experts introducing what we should expect in the years ahead, how the new fuels will work in engines and what preparation needs to be done for the zero-carbon transition. Topics covered will include Carbon Regulation and the EU Emissions Trading System (EU ETS).

The conference is hosted by the Turkish Chamber of Shipping. We would like to thank our Platinum sponsor Petrol Ofisi, Gold Sponsor Alkagesta, Silver Sponsor Socar, Bronze Sponsors Castrol and Unerco, Lanyards and Badges Sponsor Methanol Institute, Pens & Notepads Sponsor Reseaworld, Presentation Folders Sponsor Tufekci Law, and Bags Sponsor Asmira Bunker. We would also like to thank all our Supporting Organisations and media sponsors.

IBIA Mediterranean Energy and Shipping Malta, 13-15 September

The bunker industry was looking forward to a year of recovery in 2022 as the

Western economies had started to put COVID-19 behind them and Asia-Pacific looked set to follow before long. But the war in Ukraine has now opened any sense of calm. The industry is now scrambling to move on from using products of Russian origin and to cope with the knock-on impacts of the war and ensuing sanctions on various shipping segments. Prominent speakers will explore the benefits of green alternatives and environmental technologies that will carry the bunkering industry into the future and beyond.

Join us at the IBIA Mediterranean Energy and Shipping Conference in Malta in September, 2022 for an in-depth look at all of these issues and more. The Conference as well as the IBIA Bunker Training Course, which will take place the first day of the event, will be held in person at the Malta Marriott Hotel & Spa, St. Julian's, Malta.

The Conference is powered by the Ministry of Energy. We would like to thank our Silver Sponsor, EVOS Terminal and our Bronze sponsor Ministry Transport Malta and Terminal.

To view the agenda, click <https://ibiamaltabunkerconference.com/> (early bird applied until 3rd June)

IBIA Annual Convention 2022 Houston, 15-17 November

To be held some 11 months after the start of the war in Ukraine, the Convention will be an opportunity to take stock of the massive changes that will have taken place in the shipping and bunker markets.

Bunker prices will be a particular area for discussion. Around the world marine fuel is now trading at or near record highs, and the long-discussed issue of the bunker industry's access to credit is starting to become more acute. Beyond these immediate concerns, decarbonisation and digitalisation remain the dominant themes for the industry, with shipping and bunker companies looking to invest in both areas to modernise their operations, cut bills and reduce emissions.

Join us at the IBIA Annual Convention 2022 in Houston in November for an in-depth look at all of these issues and more. The event will be held in person at the JW Marriott Houston by The Galleria Hotel in Houston on November 15-17.



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To view the agenda, click <https://www.ibiaconvention.com/>

Should you want to participate as **sponsor and/or speaker** at any of the above Conferences, please do not hesitate to contact me directly.

By joining IBIA you will become part of a global network of bunker industry experts who collectively form the world's leading authority on bunkers. You will have access to a wealth of information and insight. We publish newsletters and industry updates on current issues that offer pragmatic advice on managing the industry's challenges. Members also have the potential to shape and influence both international and local legislation.

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Make sure you are part of this voice! If you and your company wishes to join the IBIA community, participate in the members meetings, actively contribute to our working groups, attend conferences and training courses, you can become an individual or corporate member now! You can access all information on our website www.ibia.net.

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Get in touch with us at ibia@ibia.net

Sofia Konstantopoulou
Global Head of Marketing & Events
T: +30 6986 624 069
M: +44(0)7531 918 914
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15-17 NOVEMBER
IBIA ANNUAL CONVENTION 2022
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Houston

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

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- 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



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**Mediterranean Energy
and Shipping Conference**



IBIA AFRICA LAUNCHES INDUSTRY SURVEY AND FUTURE EVENTS

The IBIA Africa Regional office takes steps to further understand the needs of the Africa shipping and bunker market

IBIA Africa has launched an extensive online survey to our IBIA members based in Africa and is encouraging the wider participation of the shipping and bunker industry within the African region. The rationale behind this survey is to gain valuable insights to further understand and identify the specific regional needs of the Africa markets. The regional team proposes to establish a more targeted and region-specific offering to our members, industry and future members. The online survey, aimed at the wider maritime industry, will serve as a valuable tool to get the industry's views, and help mould IBIA Africa's strategic growth and engagement.

To further engage with the IBIA Africa membership and industry, the Africa team will host an open forum online meeting in July 2023. We invite all members of IBIA who have interests and or future interests in the Africa market to join us as we share IBIA's aspirations for Africa as well as hear directly from you about your expectations.

In exciting news, IBIA Africa is in the throes of planning our first in-person event in Q2 of 2023, this will be the 3rd IBIA Africa Conference. This conference will take place in West Africa and will allow us to bring the Africa shipping and bunker industry together. We will focus on addressing the challenges the maritime and bunkering industry face today as well as envisioning/predicting/covering future aspects of the industry. We will gain first-hand insights and understand the challenges faced and successes achieved in the bunkering and shipping sectors. IBIA will also present the latest updates from the IMO while industry experts and leaders will share important industry developments and experiences. All of the above is work in progress and, as we secure venues and arrange dates and times, we will remain engaged with our members and industry with regular updates via email and on the IBIA website.

Should any of our members wish to discuss these plans in more detail please contact me directly.

More generally, if you would like to engage with the IBIA Africa team, or become a member of IBIA, speaker, sponsor or find out more about our local engagements and events, you can contact me at:

Tahra Sergeant
Regional Manager: Africa
SA Mobile: +27 (0)79 990 7544
E: tahra.sergeant@ibia.net
S: [sergeant.tahra](https://www.linkedin.com/in/sergeant.tahra)
W: ibia.net





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Future Fuels panel discussion at APM 2022

ON COURSE FOR FUTURE CHALLENGES

My time as the Regional Manager for IBIA Asia has come to an end as we emerge strong after the storm

On 18 March this year, I was thrilled to meet in person with industry colleagues in Singapore at APM (Asia Pacific Maritime) 2022.

We had a really useful discussion on Future Fuels in a session moderated by Simon Neo, Executive Director of bunker consultancy firm SDE International, where my fellow panellists were Douglas Raitt, Regional Advisory Services Manager at Lloyd's Register, Sachin Gupta, Director for Chemical Products at Wilhelmsen Ships Service, Jan-Paul de Wilde, Head of Department, Decarbonization, Energy Transition & Innovation at RINA and Chris Chatterton, Chief Operating Officer at the Methanol Institute.



IBIA supports the Maritime and Port Authority of Singapore's (MPA) recently published Maritime Singapore Decarbonisation Blueprint: Working Towards 2050, which is available on the MPA website. As I said during the panel discussion the blueprint is a good one, and we need to let the rest of the world know how Singapore plans to achieve decarbonisation. IBIA will be available to provide training of personnel, an area where we can support Singapore's decarbonisation journey constructively.

Currently the IBIA Asia office offers mandatory training for the bunker sector in Singapore with courses that have been approved and certified by the MPA. These are: Singapore Standard SS 600:2014 + SS 648:2019 - 2 Days Basic Training for new Bunker Surveyors and Cargo Officers and Singapore Standard SS 600:2014 + SS 648:2019 - 2 Days Advanced Training for new Bunker Surveyors and Cargo Officers. We also offer specialised training for the bunker sector in Singapore.

IBIA Asia has always been membership-oriented and focused on increasing the number of members from our region, and we have achieved an increase of 5 to 6% annually. We have also encouraged our existing and new members to take up the 15% discount available for a three-year membership, which will also act as a hedge against a potential annual rise in membership fees.

If you are interested in becoming part of the bunker community through IBIA membership or interested in the bunkering training offered by IBIA Asia, I encourage you to contact ibia@ibia.net.

As I write this, I am about to leave IBIA to take up new challenges. I sincerely thank all the IBIA members who have supported me and the IBIA Asia team during the recent difficult times and helped us ride through the COVID 19 pandemic storm. IBIA has now set course for the future destinations of Digitalisation and Decarbonisation. We still have many uncertainties ahead of our voyage, but we are moving in the right direction.

Alex Tang MIPM CMarSci MIMarEST
Regional Manager: Asia
M: +65 88 76 6491
E: regionalmanagerasia@ibia.net
W: www.ibia.net



Bunker Licensing and Mass Flow Meter Survey



SURVEY CONFIRMS DESIRE FOR BUNKER LICENSING AND MFM

Huge majority of respondents to joint IBIA and BIMCO survey see these as tools to improve market transparency, Unni Einemo reports

Is there a need for more transparency in the bunker industry? And would introducing bunker licensing programmes and adoption of massflow metering systems (MFMs) improve matters? This, in essence, was the question we put to industry stakeholders in a survey launched jointly by IBIA and BIMCO in mid-February this year. The answer – for the most part – is yes.

When we closed the survey at the end of March, 189 respondents had completed the survey, sharing their experiences and opinions. The survey questions were carefully crafted by the IBIA Bunker Licensing & MFM Working Group, which BIMCO takes part in, and the data has been examined in detail by the group. IBIA member Jeff Mildner of Vortex used his technical knowhow to help us set up the survey. The findings will be shared during a meeting for IBIA members at the end of May, after which key messages reported more widely. Next steps for the Working Group, chaired by IBIA member Alexander Prokopakis of probunkers, will be considered soon.

Let's look at the key takeaways from the survey.

Participant profile

Most of the respondents were aged between 30 and 60, had higher education, half were in sales and marketing, more than a third in management or board level, with a smaller share coming from operations. Just over 32.5% identified as shipowner/manager/charterer/operator, grouped together in the chart (Figure 1) as 'bunker buyers. Bunker trader or broker was the biggest respondent group at 35%, and a bit more than 18.5% identified as physical supplier/barge owner. The remaining respondents, – grouped as

'Others' in the chart – were split in order of magnitude between other, inspection company/surveyor, agent, port authority and insurance.

Disputes

Respondents reported quantity disputes associated with 1.61% of deliveries, compared to 0.98% disputes relating to fuel quality. The average cost of disputes, however, was higher for quality disputes at \$54,009 versus \$27,790 associated with quantity disputes.

Company type

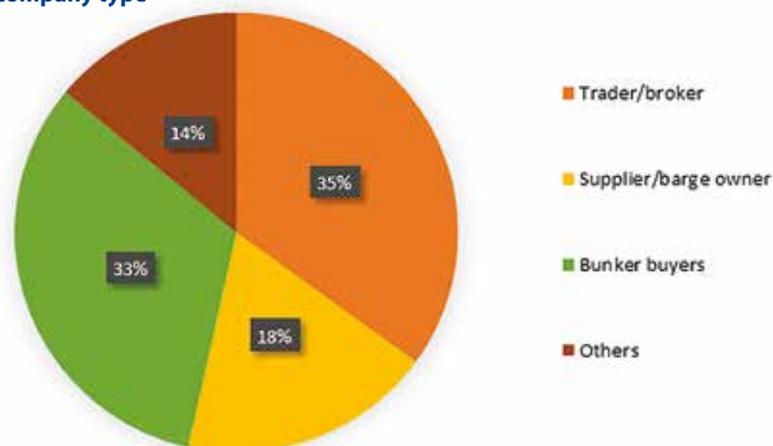


Figure 1



Disputes were, by and large, settled commercially: 69% of quantity and 53% of quality disputes, but nearly a third of quality cases ended up as legal claims versus less than 10% of quantity cases. The remainder were recorded as 'reported to authorities', 'other' or N/A.

Unsurprisingly, most disputes were reported in the biggest bunkering hubs – which is to be expected given this is where most deliveries take place. This supports the idea that major bunkering hubs is where we should focus the push for introducing bunker licencing and mandatory MFMs, which is what IBIA has been advocating.

Transparency wanted

A vast 91.5% majority agreed that there is a need for increased transparency between bunker suppliers and buyers. Looking to the case of Singapore, they seemed to agree that the introduction of a Bunker Licensing Program (74.5%) and mandatory use of MFMs (76%) have had a positive impact on the bunker market in the port.

About half of the respondents assumed introducing these measures will result in fewer suppliers and increased bunker prices, but not a huge price increase.

There were mixed views on how effective bunker licensing would be to reduce quality and quantity disputes: 62% expected a decrease in quantity disputes while 48% said they anticipated a decrease in quality disputes. Nevertheless, 81% of those answering this particular question said they would prefer to bunker in a port that has a bunker licensing programme.

For MFM the responses were much more uniform: 84% said they believe it would cut quantity disputes, 94% would prefer to bunker from a supplier that has MFM installed, and 80% would accept the supplier's quantity figures if the barge has an MFM meter that is certified and used properly.

Figure 2



Paying the price

Most respondents, of which more than half were from the supply side (mainly traders) said they want more bunker licensing and application of MFMs in the bunker market, but who is willing to pay?

Singapore, the only port to have mandated MFMs, provided significant subsidies for suppliers to install these on their barges. The Maritime and Port Authority of Singapore (MPA) is also willing to spend time and resources to monitor compliance with the terms of its bunker licensing scheme. Singapore still sees both quality and quantity disputes, but there is no doubt that its licensing scheme has improved its reputation as a bunkering port, and that mandatory MFMs has reduced quantity claims.

Not all ports are subject to such dedicated efforts to regulate and improve the

reputation of its bunkering sector. Few, if any other ports are likely to provide financial support to barge operators to install MFMs, meaning the barge owners will have to bear that cost. Also, as witnessed in Singapore prior to all barges having MFMs installed, not all bunker buyers were willing to pay a premium to have a delivery where a duly certified MFM was used to determine the quantity.

Bunker licensing, and properly certified and used MFMs, can build transparency and trust in the bunker sector, improve market conditions and help build a level playing field for quality operators. The survey findings show this is what the industry wants. It seems an investment worth making to help raise standards and the industry's reputation, as long as everybody agrees it is worth paying a fair price for a better quality of service.



NEW MEMBERS

CORPORATE A

Broker

Patrick Lehmann**Key Marine Americas LLC**

Americas

Bunker Supplier

Barend van Schalkwyk**OCI Fuels BV**

Europe

Charterer

Gaetan Perret**Cargill International**

Europe

Ship Owner, Charterer

Dian Esterhuyse**Linsen Nambi Bunker****Services (PTY) Ltd**

Africa

CORPORATE B

Bunker Trader

Rasmus Jacobson**Monjasa**

Americas

Buyer

Alex Tang**Intertek Lintec**

Asia

Buyer, Shipowner

Stephen Pike**Oldendorff Carriers****(Singapore) Pte. Ltd.**

Asia

INDIVIDUAL

Bunker Supplier

Erdal Yazici**SYS Shipping &
Bunkering Ltd**

Europe

Other

Michael Donthimalla**Riverside Shipping**

Europe

Financial

Jesse Axelrod**Axelrod Energy Projects**

Americas

Other

Daniel Rose**Signal Ocean Ltd**

Europe

Other

Kristian Andersen**Girander ApS**

Europe

Service

Prabjot Singh Chopra**SeaTech Solutions****International (S) Pte Ltd**

Asia

Supplier

Philippe Vathanananh**VP Bunkers**

Europe

Agent

Matthew Ellul Sullivan**Sullivan Shipping****Agencies Ltd**

Europe

Service

Deanna Macdonald**BunkerTrace Ltd**

Europe

Service

Tammi Ingannamorte**ClearLynx LLC**

Americas

Bunker Supplier

Stewart Hendry**Saudi Shipping and Maritime
Services Co. Ltd (Tranship)**

Middle East

Service, Surveyor

Dr. Ram Vis**Viswa Group**

Americas

Bunker Supplier

Sulaiman Alhadhrami**Duqm Bunkering**

Middle East

Bunker Supplier, Service

Mohsin Fahih**Saudi Shipping and Maritime
Services Co. Ltd (Tranship)**

Middle East

Other

Spyridon Tsaros**GMX Ships & Ports Agency**

Europe

Ship Owner, Ship Manager

Roberto De Berardinis**D'Amico Tanker UK**

Europe

Bunker Supplier

Alexey Stakanov**Global Bunkering Ltd**

Europe

Charterer, Service

Begum Dogulu**Begum Yachting**

Europe

JOIN US

- IBIA MEMBERSHIP BENEFITS -

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.

INDIVIDUAL £300

- IBIA Board Member eligibility
- The right to 1 vote for Board Member Elections
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USEFUL INFORMATION

- 15% discount for 3 years membership, (Paid in one instalment) – Guarantee no membership price increases for the next 3 years.
- Unregistered offices will not get IBIA benefits



If you are interested in becoming an IBIA member please contact ibia@ibia.net or visit www.ibia.net

IMO APPROVES NEW FLASHPOINT REGULATIONS

SOLAS amendments will put new requirements on bunker suppliers as IMO works on measures intended to enhance fuel quality checks prior to delivery. IBIA's Unni Einemo explains what's happening

The IMO's Maritime Safety Committee has, for some time, been discussing safety concerns around oil-based bunker fuels, in particular heavy fuel oil and very low sulphur fuel oil. IBIA, with the assistance of our Technical Working Group, has been closely involved in these discussions, including at the 105th session (MSC 105), which met from 20 to 29 April.

MSC 105 established a working group tasked with developing regulatory amendments to the International Convention for the Safety of Life at Sea (SOLAS) in relation to flashpoint, and to further consider other fuel oil parameters that impact the safety of ships. Among the papers discussed was a submission from IBIA, MSC 105/5/1, which was taken into account during development of the SOLAS amendments.

SOLAS amendments

SOLAS amendments designed to prevent the supply of fuels in breach of the 60°C SOLAS limit were approved at MSC 105, and are expected to be formally adopted in November this year at MSC 106.

IBIA has worked hard to ensure the amendments are pragmatic and workable, after a majority of Member States and other NGOs with consultative status at the IMO decided to add a range of new requirements under SOLAS.

Work on these amendments have been going on for years under an agenda item called "Development of Further Measures to Enhance the Safety of Ships Relating to the Use of Fuel Oil". IBIA has taken active part in this work, including in the Correspondence Group on Oil Fuel Safety working between MSC meetings.

The SOLAS amendments will make it mandatory to report all cases where "oil fuel suppliers have failed to meet the requirements specified in SOLAS regulation

II-2/4.2.1" and for the appropriate authorities to "take action as appropriate against oil fuel suppliers" that have been found to deliver non-compliant fuel.

While these SOLAS amendments are straightforward, discussions have centred on the difficulties associated with defining "confirmed cases" and new requirements on suppliers for documentation and assurances regarding flashpoint.

Many interested parties have been calling for a mandatory requirement for suppliers to document the actual flashpoint on the bunker delivery note (BDN) regardless of temperature. IBIA has said throughout that a supplier declaration of compliance would be sufficient as part of the SOLAS amendments. Recognising that a majority was seeking a requirement for a specific flashpoint value to be recorded on the BDN, IBIA strongly recommended requiring only values below 70°C to be specifically documented.

Following long discussions in the working group; IBIA's proposals in MSC 105/5/1 were either followed or partially used.

A majority of the working group recognised that testing to determine if the fuel has a flashpoint above 70°C is sufficient to guarantee it is above the 60°C minimum.

The draft amendments approved at MSC 105 include information on what constitutes a confirmed case, what constitutes a *representative sample* and footnotes describing the correct test methods and laboratory qualifications for undertaking flashpoint testing.

New regulatory text has been added that will put new demands on bunker supplier. The key part is that the supplier is to provide, prior to bunkering, "a declaration signed and certified by the fuel oil supplier's representative that the oil fuel supplied is in

conformity with regulation SOLAS II.2/4.2.1 and the test method used for determining the flashpoint. A bunker delivery note for the fuel delivered to the ship shall contain the flashpoint specified in accordance with standards acceptable to the Organization, or a statement that flashpoint has been measured at or above 70°C."

If adopted at MSC 106 in November this year, these SOLAS amendments are expected to enter into force as of 1 January, 2026. Individual governments may, however, decide to implement the amendments early.

The 77th session of the IMO's Marine Environment Protection Committee (MEPC 77), which met in November 2021, considered draft amendments to amend Appendix V – Information to be included in the bunker delivery note (Regulation 18.5) by adding "Flashpoint (°C)" to the list of information, below "Sulphur content (% m/m)".

MEPC 77 decided to await the outcome of MSC 105 on the flashpoint data that ought to be recorded and reported in relation to safety. MSC 105 therefore invited MEPC 78, which meets for a week from 6 June, to note the draft SOLAS amendments with regard to flashpoint.

Discussion to continue on sampling

What happens next when ships have indicative test results suggesting that the oil fuel supplied may not comply with the minimum 60°C flashpoint limit under SOLAS? This was among the questions addressed at the working group during MSC 105.

Having noted that there were several guidelines and advisories in place already, the working group agreed to limit future discussion on the subject to development of sampling procedure guidelines for a "SOLAS



sample” similar to the existing “MARPOL sample” taken at the time of delivery to ship. The delivered MARPOL sample is only for the use of relevant authorities to check for compliance.

IBIA suggested to the working group that the existing delivered MARPOL sample, which is also recorded on the bunker delivery note (BDN), could potentially be used to check for flashpoint. It is possible for authorities to take a sub-sample from the MARPOL sample for this purpose; the remaining MARPOL sample can be resealed and kept on the ship. It would not have a negative impact on any subsequent testing for sulphur, should that be required.

After doubts about this approach during initial discussions, support grew. It was noted that requirement for an additional sample besides the sample required under the MARPOL Convention should be avoided. Furthermore, the working group noted information presented by ISO and IBIA, that the number of cases where a representative sample needs to be analysed to determine the flashpoint is expected to be far below 1% which makes an additional sample an unnecessary burden.

MSC 105 agree to task the Correspondence Group on Oil Fuel Safety, which was re-established, to develop guidelines for sampling procedures, taking into account resolution MEPC.182(59), which contains the *2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI*.

An amendment to resolution MEPC.182(59) and/or a joint MSC-MEPC guideline could offer a way forward, allowing a single sample to be available for authorities to check for compliance with flashpoint and/or sulphur to establish compliance.

Other bunker fuel safety risks

The recent chloride contamination cases in Singapore were raised during at the MSC discussions at working group. Neither the chloride contamination in Singapore, nor the fuel-related problems arising for a large number of ships that took bunkers in Houston in 2018, were discovered during routine testing for parameters specified in ISO 8217. Calls are therefore growing for enhanced testing of bunker fuel prior to

delivery to ship, and for suppliers to face more liability.

The working group at MSC 105 also heard that it is important to establish at which level organic chlorides and other components are harmful, and to develop harmonised test methods. At present, testing agencies mostly use in-house GC-MS methods which are difficult to compare.

The working group at MSC 105 noted “overwhelming support” for the IMO to make efforts to prevent the bunkering of oil fuel that may jeopardize the safety of ships.

The Correspondence Group on Oil Fuel Safety was instructed to collect information and consider how to move forward. At that stage, IBIA stressed the importance of inviting relevant experts to participate in the correspondence group.

IBIA intends to continue to take part in the Correspondence Group on Oil Fuel Safety.

Guidelines for ammonia

MSC 105 also decided that work will commence to develop guidelines for the safety of ships using ammonia as fuel. The work will be undertaken by the Sub-Committee on Carriage of Cargoes and Containers (CCC), with a target completion year of 2023. Once developed by the CCC Sub-Committee, the guidelines will be sent to MSC for approval.

As the IMO works on both environmental and safety aspects of alternative fuels that can help reduce greenhouse gas emissions from international shipping, there was general support for the proposal.

CCC already has a continuous agenda item on “*Amendments to the IGF Code and development of guidelines for low-flashpoint fuels*”. IBIA participates in CCC meetings and a correspondence group working on IGF Code amendments, which is considering a range of low-flashpoint fuels, including LPG and oil-based fuels with a flashpoint below the 60°C SOLAS limit.

The key safety concerns for using ammonia as fuel include its toxic effects, both for shipboard and nearby personnel and to marine life (in case of release). Explosion is also a risk, as although ammonia is hard to

ignite it may create explosive atmosphere in storage tanks. Corrosion is also an issue.

Major step forward for fuel cells

After around 10 years of discussion, MSC 105 approved *Interim guidelines for the safety of ships using fuel cell power installations*. The goal of these Interim Guidelines is to provide criteria for the arrangement and installation of fuel cell power installations with at least the same level of safety and reliability as new and comparable conventional oil-fuelled main and auxiliary machinery installations, regardless of the specific fuel cell type and fuel. Depending on the fuel used, other regulations (e.g. *IGF Code*, part A) and provisions (e.g. *Interim guidelines for the safety of ships using methyl/ethyl alcohol as fuel*) are applicable in addition to these Interim Guidelines.

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 CO₂.

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 feeds for fuel cells. IMO safety provisions for ships to use hydrogen, or ammonia as a hydrogen carrier, have yet to be developed, but work is underway. CCC has initiated the development of guidelines for the safety of ships using hydrogen as fuel, and MSC 105 gave it the green light to begin work on non-mandatory safety provisions for ships to use ammonia as fuel.

All in all, the IMO’s safety body is working in lock-step with MEPC to ensure that the IMO can put in place regulatory frameworks that allow for a safe transition to more environmentally friendly and sustainable fuels.

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3 BERTHS

7 OPERATIONAL
BARGES

2 ANCHORAGE
AREAS

6 MT
ANNUAL CAPACITY OF
BUNKERING (IN / OUT)

15 MT
TOTAL ANNUAL
HANDLING CAPACITY



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- 'Alcazar - Tanger Med West': situated in front of Tanger Med Port within the strait
- 'Fnideq-Tanger Med East': situated below the east part of the port

CHARACTERISTICS OF TANGER MED OUEST AND TANGER MED EST :

- Bunkering activities under way in both anchorage areas and inside the port
- Up to 16 anchorage positions
- Adequate sea ground for anchorage
- Good meteorological and sea conditions
- Other services available (crew change, ship chandelling, spare parts transportation....)
- Low congestion

With multiple anchorage position, both areas offer no congestion for bunkering and service to ships and within reach of transiting shipping lines of the strait.

Supplied and managed by Minerva Bunkering, the bunkering activity in the port and the anchorage areas has developed tremendously since its inception in 2011, and expect a steady growth due to advantageous conditions applicable for bunker calls only.

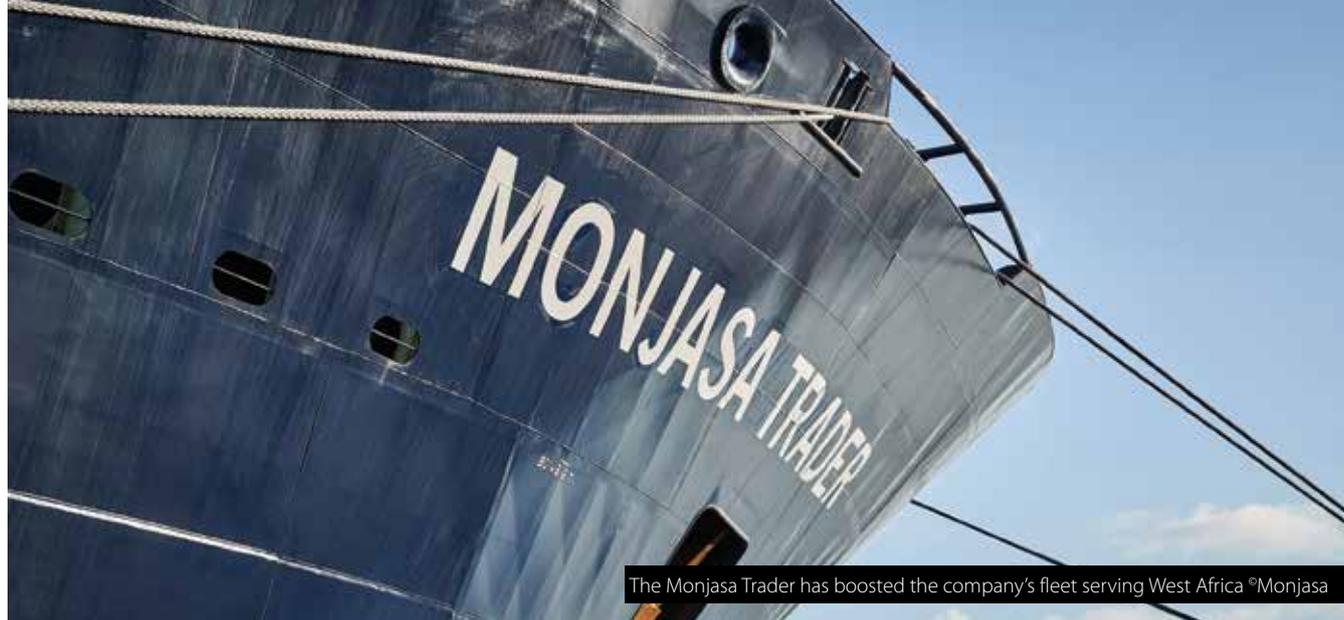
Further information on the bunkering activity within these anchorage areas can be provided by the Port Authority of Tanger Med www.tangermedport.com

**Dedicated Oil Terminal operated
by Horizon Terminals
Multiple anchorage areas direct
on the strait**

TANGER MED
PORT AUTHORITY



MINERVA



The Monjasa Trader has boosted the company's fleet serving West Africa ©Monjasa

OPTIMISM AS NEW NIGERIAN REFINERY COMES ON STREAM

While price shocks from the war in Ukraine have hit Africa's oil markets, the increasing availability of locally refined products should be a real lift for suppliers, writes John Rickards

As the region emerges from the worst of the pandemic, West Africa's bunker and fuel sector, which largely held steady through 2021, is showing distinct signs of an uptick. Nigeria's new Dangote refinery, the largest in Africa, came on stream this spring, providing a significant boost to local VLSFO production capacity. Suppliers working in the region have upgraded or expanded their services. Long-standing major player Monjasa added a further barge last summer, while TFG has begun installing mass-flow meters on its fleet off Benin and Togo. They were joined this March by Sonan Bunkers, which has launched a new operation along the Nigerian coast in partnership with a local contractor.

Monjasa in particular has been keen to note that it has been able to start sourcing VLSFO from local refineries, which wasn't the case a couple of years ago. With increased availability of local low sulphur fuel, things look bright and all told, all parts of the supply chain would seem to be betting heavily on the future along the West African coast.

To find out if that's actually happening, especially given the volatility of the oil sector since the Russian invasion of Ukraine, *World Bunkering* spoke first to Monjasa Group COO Svend Stenberg Molholt about the state of the market and the outlook for the company in the region, given its long history as a dominant player on the West African coast.

WB: Monjasa's African volumes were steady in 2021 despite all the challenges the year threw up. Can you give any indication of how 21/22 is shaping up? The company added the Monjasa Trader to its already impressive West African fleet last August so I presume the picture is reasonably optimistic?

SSM: Going on the 15th year of providing logistics and heightening service levels for the shipping industry in West Africa, we remain optimistic on our development in volume and support from customers and suppliers in the area. At the same time, however, we recognise market uncertainties and market fluctuations like never before caused by the war

in Ukraine. Therefore, we continue to take a conservative approach to this year's volume developments and will keep observing and navigating market developments closely together with our partners.

WB: Russia's invasion of Ukraine has caused a spike in oil prices, not to mention shifts in global trading patterns, that doesn't show much sign of easing any time soon. Has that impacted business at all? How much cushioning has switching from imported fuel oil to locally refined products in WAF over the course of the past year or two provided against operating cost and market fluctuations?

SSM: Looking at the daily oil price fluctuations experienced since the war broke out, it is clear that this is an extraordinary situation that needs to be carefully managed from a financing and credit point of view too. Monjasa remains in a very robust financial position and have maintained a high activity level during Q1 2022. We are seeing how global trade and vessels are trading more in other areas



Local production will be a great benefit to Nigeria's fuel business – but challenges remain ©Seplat

across the world, but it is hard to pinpoint which market is particularly affected as all markets are impacted in some shape or form.

Since the IMO 2020 shift away from high-sulphur fuel products, Monjasa has indeed increased local sourcing of straight-run low-sulphur fuel oil products from across West Africa. Access to multiple high quality sourcing options have positively impacted operating costs and at the same time brought us more flexibility on matching supply and demand in the dynamic West Africa region.

WB: On a very broad global level, shipping traffic and trade seems to have largely recovered from the worst of the pandemic, though this is by no means the same everywhere. Is that the case on a local level, though, or are there still difficulties to overcome?

SSM: The ripple effects of the pandemic continue to shadow global trade developments in some parts of the world, not least in China, where the world's largest ports and terminals remain affected by lockdowns. This also means that supply chain disruptions and bottlenecks emerge elsewhere in the world and continue causing global trade imbalances.

Zooming in on Monjasa's fleet and operations in a Covid-19 context, we are

seeing overall accessibility to our vessels returning to normal for the benefit of our technical management, crews and the overall operation efficiency, which is of course very positive.

WB: What do you think the overall outlook for the coming months is? Are there any particular challenges or opportunities on the horizon?

SSM: So far, we have seen some movements of shipping routes and traffic at bunker ports as a consequence of the war in Ukraine. It may be that longer term impacts completely change some trading flows and everyone is sitting on the fence right now in terms of the longevity of the war and derived geographical shifts of operations and price level developments.

Monjasa is a global supplier that originally expanded into the region, of course, with a long reach and a network capable of adjusting to shifts in the market, but the view from the standpoint of a similar supplier that has grown out from West Africa seems to be similar. *World Bunkering* also spoke to Kelvin Chukwujekwu, executive director for marine services at Lagos-based international supplier KMC Marine Energy, who says that Russia's invasion of Ukraine has had a marked impact.

"We believe the situation has affected maritime bunkering/global shipping," he said. "As soon as early March 2022 (shortly after the invasion), we started experiencing a sudden dramatic spike in bunker prices around West Africa, which could be directly linked to the hike in global crude oil prices, largely because of the Russia-Ukraine situation. Ever since then, bunker prices have only been 'stable' in terms of increase. Marine gas oil, for example, has never sold below US\$1,000 a tonne around Lagos (as a reference location), since the invasion." "Also, the prices of imported food items/feedstocks (e.g. wheat, barley, etc.) went up, especially in Nigeria, which is largely an importing nation. Russia is understandably the top producer and exporter of wheat and barley."



Kelvin U Chukwujekwu, MIMarEST

Echoing the situation in Turkey (see the Eastern Mediterranean section in this issue of *World Bunkering*), sanctions are having knock-on effects even in countries which haven't imposed them. "Bunker suppliers seem to be cautious about supplying bunkers to Russian-owned or -flagged vessels for fear of payment delays due to US sanctions on Russia, since payment is usually made in US dollars," he said. "Some marine lubricant contracts our company were to execute got stalled because they involved a Russian counterpart. We only hope that the situation eases as soon as practicable so that normal business life can fully go on."

How has this affected the recovery from the depths of the pandemic, though? Chukwujekwu says that owners are being very cautious now, given the costs involved.

"Shipping traffic and trade seem to have been recovering fast from the effect of the Covid pandemic since the beginning

of the year, before the Russia invasion of Ukraine, which slowed the recovery rate. The Nigerian bunkering sub-sector is recovering at much slower pace due to the hike in global oil price and tight availability of compliant bunker fuel grades, especially VLSFO and LSMGO. Knowing that a high percentage of the cost of running a ship is accounted for by bunker fuels (which also includes lubricants), ship owners seem to be paying more attention to bunker fuel prices and not willing to lift high volumes in West Africa due to higher cost, inefficiency on the part of bunker suppliers, and of course, tight avails of required grades."

The commissioning of the Dangote refinery in Nigeria has been a long time coming, but Chukwujekwu agrees that it should prove as much of a boost to the market as expected.

"The long-awaited Dangote refinery is going to be a big relief to the West Africa bunker market," he said. "It is a 650,000

barrels/day refinery, which is undoubtedly the largest of its kind in Africa! Marine fuels grades and feedstocks from the refinery are expected to guarantee sufficiency for the West African market in terms of avails. Bunker fuel prices are also expected to be more competitive, especially around the Lagos-Lome corridor. We expect the refinery to produce IMO 2020-compliant marine fuel grades like VLSFO, LSMGO, as well as high-quality base oil grades for marine lubricant production."

"On a general note, the refinery shall provide huge support to the Nigerian economy as it will reduce Nigerian petroleum product imports to almost zero, thereby freeing a huge amount of forex currently used for this purpose."

"However, the issues in the Nigeria bunker market may not completely go away. There is still no regulatory framework in place for bunkering in Nigeria, and so ship owners may still not feel very comfortable to order large volumes despite competitive price

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 Tel: +234-803-314-7275
 Email: trading@kmcmarine-energy.com

North America
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levels, due to a lack of trust in bunker suppliers operating in an unregulated space. Also, the issue of safe bunkering environment may still be there, although efforts are being made to persuade the government to properly regulate the industry and create a safe bunkering environment."

On balance, though, he feels the rest of the year should largely be a positive for the company.

"Going forward, the outlook for KMC Marine Energy Ltd is on the positive side," Chukwujekwu said. "We are expanding our physical supply bases to Lome (Togo) and Douala (Cameroun) and our Singapore office is expected to begin worldwide trading by the last quarter of 2022.

Currently, KMC Marine Energy Ltd is a part of an international marine supply team and delivers marine lubricants at over 60% of ports in Africa (Lome, Abidjan, Cotonou, Douala, Mombasa, Mauritius, Walvis Bay, Dakar, Pointe Noire, Cape Town, etc). We also deliver at US ports via our partner, Marine & Energy Trading Corp. Presently, we are about to conclude a franchise agreement with a world class lubricant producer to handle their OEM-approved marine grades from Tema port (Ghana) down to Douala (Cameroun) – Tema, Lome, Cotonou, Lagos, Warri, Port Harcourt and Douala."

"But," he stresses, "the top challenge remains the unregulated bunkering space, especially in Nigeria."

New players in Mauritius

On the other side of the continent, bunkering ships on the Indian Ocean



Bunker One is one of two suppliers to expand Mauritius' fuel offerings ©Bunker One

trades has also seen some signs of resurgence in Mauritius - albeit before the current volatility in oil prices. The later stages of 2021 saw two expansions into the local bunker market, which again suggests that the immediate future outlook remains broadly positive.

TFG Marine, which is already active in other regions around Africa, announced in November that it was to partner with newly licensed GRM-EOT to offer a wide range of fuels, including biofuels, at Port Louis. And Bunker One launched physical supply operations in the Mauritian capital in the fourth quarter of last year using terminal capacity acquired from Vivo Energy.

Bunker One CEO Peter Zachariassen said: "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."

The company's African arm managing director Mads Borggaard added: "We are extremely pleased to now have our entire supply chain operating on the East African coast. We have implemented the same robust setup in Port Louis as we have on the west coast of Africa, meaning controlling the entire chain from blending, freighting, hedging, and storing to delivering Bunker One's products to our clients. Supply locations on both sides of Africa is a natural progression for Bunker One. We aim to position Port Louis as a key regional bunker hub to ships calling and passing Mauritius. We look forward to introducing our well-known service to the East African market with Port Louis as the starting point, ensuring a class A bunker hub to our clients in close collaboration with local authorities and adherence to local regulations."

Establishing Mauritius as a bunker hub has been a long-term aim of the country's government, so a vote of confidence like this after all the hardships of the pandemic can only be a good thing.

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Traffic through the Bosphorus has plummeted since the Russian invasion of Ukraine ©Hans Birger Nilsen/CC-BY

LONG ARM OF THE WAR

Turkey and the rest of the Eastern Mediterranean are facing a complex mix of economic impacts following the invasion of Ukraine, as John Rickards writes

2022 was always going to be an interesting year for the Eastern Mediterranean. A hoped-for return to something like normal after two years of pandemic effects on trade and working practicalities, the equally hoped-for return of the cruise sector whose loss has affected bunker suppliers in Greece in particular, and the decision by Barcelona Convention states in December to formally start the process of making the Mediterranean the next IMO sulphur emission control area (ECA) by 2025, all looked set to shift the shape of the region's long-term fuel market.

And then Russia invaded Ukraine, sending oil prices skyrocketing and drastically cutting traffic in and out of the Black Sea, as well as seeing sanctions imposed by EU members and others. Interesting times, indeed.

It, which has found itself in a slightly awkward middle ground between Russia and much of the rest of the world, particularly Europe, hasn't imposed

sanctions - but as the primary bunker hub for and gateway to the Black Sea has seen a hefty impact from the war's effect on trade.

World Bunkering spoke to Energy Petrol CEO and IBIA board member Mustafa Muhtaroglu to learn more.

"The war between Russia and Ukraine has dramatically affected the bunkering business in Turkey," he said. "At the first stage, we observed a sharp decrease of bunker demand due to shipping traffic from the Black Sea being very much down."

"Some 13,500 ships per year were loading from Ukraine and passing through the Bosphorus, being the main client for bunker suppliers serving in Turkey. This traffic has now completely stopped so demand for bunkering is down about 50%."

"As I write this [in early April] there were only six ships waiting for passing southbound where you normally have 100+ ships waiting every day, with an

average waiting time of over 36 hrs. Now there is no traffic from the Black Sea, no ships around, killing bunker demand in the area."

"Total bunker volumes sold in Istanbul was a record in 2018 with 3 million tonnes. Then it was 2.4 million in 2021 as an effect of the 2020 pandemic. Istanbul bunker sales average about 200-250,000 tonnes per month but it seems it will go down to 100,000 per month after the Russian invasion of Ukraine on February 24."

"It's not only sharply decreasing demand, there is almost chaos in the marketplace not only for Russian-flag or controlled ships, but for every single voyage to or from the Black Sea. Some suppliers are not supplying ships coming from Russia, some are not supplying Russian-flag or Russian-managed ships, some are even not supplying ships not loaded from Russia but carrying Russian-related cargoes. This is creating big problems for the bunker market in the area."



"In this concern, some banks are simply refusing to get or pay any bunker bills for ships which have been in the area without even checking if they are involved with any sanctions. In fact there is a very unclear situation: are there sanctions on energy? It is not clear at the time of writing; for example, a bank in Europe saying NO to paying for bunker fuels for ships which have called at Russian ports while they are getting heated by Russian gas?"

"We all need very fast clarification."

"On the other hand, the bunker market in this area faces another challenge for replenishments. 70% of the VLSFO sold in Turkey was coming from the Black Sea. Not exactly Russian products, mostly Azeri or Turkmen and Kazak products were feeding the bunker market coming from the Black Sea, including some Russian ports like Novo. It's also a fact that Russian-flag tankers were doing regular voyages bringing cargoes to Turkey and the Eastern Mediterranean, and now they can't do it due to recent sanction talks."

"In fact, Turkey is not applying any sanctions to Russia. However, current dynamics unfortunately block trading in this area even when there is no sanction by the EU or UN."

"In the meantime we have another hot topic, for the Mediterranean to become an ECA soon. My recommendation would be to start this by 2023, which would make shipping and bunkering much more safe and convenient in the area."

Turkey, which is looking nationally at a sharp current account deficit of up to 4% of GDP as a result of the war, is making attempts at least to shore up trade traffic in other ways as well as to reduce its use of Russian oil and gas.

In late April, a presidential decree awarded Turkish Petroleum a US\$10bn combination of various tax breaks in exchange for rapid development of the Sakarya gas field in the Black Sea. Turkish Petroleum is targeting annual production from the field of 14 billion cubic metres at least, over a quarter of the country's gas consumption, with production beginning next year.

In March, the country also revived a long-shelved idea for a gas pipeline from Israel's Leviathan gas field in the Med to Turkey. In this case, though, financing and political complications would seem to make the chances of the project taking off somewhat more remote.

The country is still keen on turning itself into a hub for LNG bunkering. Late last year, an existing joint project between Arkas Bunkering and Japan's Sumitomo Corporation, which had been looking into the feasibility of setting up LNG bunkering in Turkey since 2018, brought Turkish energy group Botas on board as a step towards making the companies' efforts a reality. Reports at the time suggested that the trio were hoping to see the first LNG bunkering take place in 2023, but there has been no update since and the sudden shift in supply and demand for gas in the region following the invasion of Ukraine is only likely to complicate things.

Turkey has also started work on a Comprehensive Economic Partnership Agreement with the UAE which could see non-oil trade double from US\$13 billion a year and strengthen the country's ties beyond the Med and Black Sea region, boosting goods and vessel traffic.

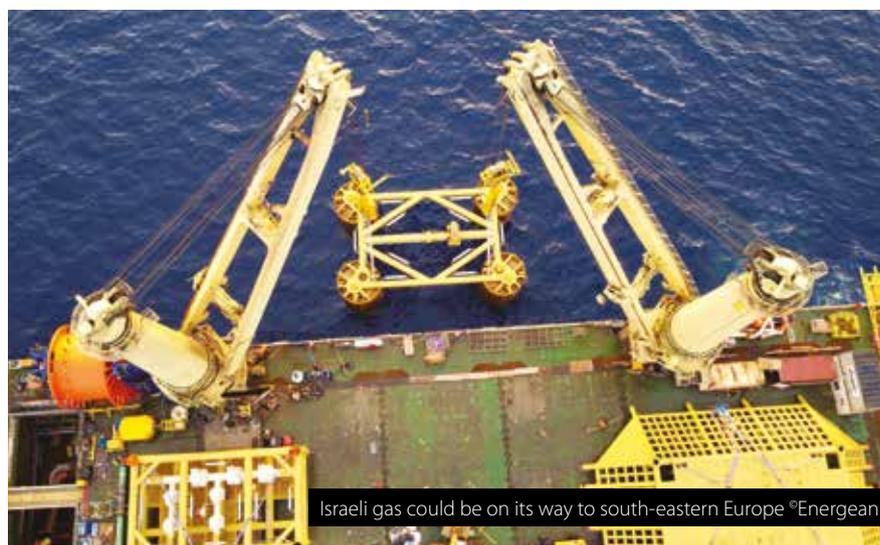
"Our ambitious trade agreement with Turkey will offer tremendous benefits to businesses, investors, entrepreneurs and consumers in the UAE," Thani bin Ahmed Al Zeyoudi, UAE Minister of State for Foreign Trade, said. "By cutting tariffs, promoting the free movement of goods,

facilitating capital flows and reducing trade barriers, we will make it easier than ever to do business with Turkey and vice versa. Together, we will explore new opportunities in aviation, tourism, logistics, infrastructure, food security, renewable energy and 4IR technologies."

Turkey isn't the only regional state looking to shift energy production and use. Israel, Greece and Cyprus have had long-standing "values-based ties" on economic and security cooperation, but this has been reinforced with a particular eye to future gas supply following the Russian invasion.

In early April, Israeli Foreign Minister Yair Lapid made a rapid official visit with his counterparts from Greece and Cyprus. As well as re-affirming their cooperation and condemnation of Russia, Lapid went on to say: "We are also examining additional economic cooperation, with an emphasis on the energy market. The war in Ukraine stands to change the structure of the European and Middle Eastern energy market. There are risks here, but there are also opportunities which we must examine together. In the coming months, we will try to expand our cooperation to include more countries as well, and we hope to have 3+1 meetings with other countries in the region and beyond."

Gas supply from Israeli waters in the long term would have been likely to use the planned EastMed subsea pipeline linking the three countries and on into the European inland network, but given that that's been in the proposal stage for nearly



Israeli gas could be on its way to south-eastern Europe ©Energiean



10 years, and the US pulled its support in January this year to leave the whole fate of the project in question (albeit this was before the invasion), alternative options are likely, and in the short term LNG carriers would be the only possibility. Greece has been pushing ahead with plans to become an LNG bunkering hub with the backing of the EU's Poseidon Med II project funding, initially through Piraeus. It also announced in January that it wanted to establish two new LNG terminals at Alexandroupoli and Corinth at a combined cost of US\$743.3 million.

As it stands, LNG bunkering on any kind of scale in the country remains something for the future. In conventional fuels, Greek ports have reportedly been able to offer cheaper fuel oil during the month or so prior to the time of writing due to the available volume of Russian exports - economically understandable, but if true, still not a great look, or necessarily something that all operators and owners want. The country playing a role in weaning Europe off Russian hydrocarbons would be a definite positive, and it's impossible to ignore that it's also been a challenging couple of years for Greek bunker suppliers. Now, though, as well as looking forward to a more normal cruise season in 2022, and a scattering of suppliers increasing their presence in Athens, there are shoots of fresh investment in the overall port sector.

Thessaloniki in particular is looking ahead to an upgrade after a respectable recovery in bulk cargo, if not containers, across

2021, up 13.3% to 4.2 million tonnes, with overall port earnings rising by about half that percentage - and with 62 confirmed cruise arrivals in 2022 compared to just 17 last year. The tender for expansion of its Pier 6 container terminal was awarded this February, with a budget of €150 million at its first stage. The expansion will allow the port to be able to handle ULCCs of up to 24,000 TEU for the first time. The upgrade is expected to generate annual revenues between €230-272 million across the port supply chain, presumably including bunkering.

The port's executive chairman Athanasios Liagkos said: "The implementation of the project of Pier 6 expansion contributes substantially to the economic and social growth, offering various and multiplier benefits for [Thessaloniki Port Authority] and more broadly for the businesses associated with port activities, both locally and nationally. The completion of the project marks the substantial upgrading of the position of the Port of Thessaloniki in the global port industry and the supply chain sector, strengthening its leading role in the country's international development."

Cyprus has been heavily promoting LNG bunkering for some years more or less in line with the growth of gas exploration off its coast, and at February's One Ocean Summit the country's president Nicos Anastasiades reaffirmed its support for reducing shipping's carbon cost. "It is obvious that we need to act together to agree on targeted international

measures," he said. "Such a course of action will allow us to achieve our emissions reduction targets, while ensuring a sustainable future for maritime transport."

"The use of cleaner fuels, the deployment of relevant fuel infrastructure, the electrification of ships, and the use of energy efficiency technologies is the way forward. A combination of all the above, coupled with the industry's initiatives and commitments, such as the Green Marine Label [Cyprus' incentive scheme rewarding greener vessels], does have the potential to improve the commercial and environmental sustainability of the sector."

While congratulating the other Barcelona Convention states for agreeing to make the Med a sulphur ECA, he also went further, and took the opportunity to look ahead to the next likely emissions restriction.

"In the same direction," he said, "we also urge the Contracting Parties of the Barcelona Convention to commence, the soonest possible, work for designating a Nitrogen Oxides Emission Control Area in the Mediterranean Sea. Such a proposal is expected to minimise further the emissions from maritime transport, achieving significant health benefits and protecting the marine environment."

Such a move wouldn't be a surprise, given that NOx control has followed SOx control elsewhere, but it's something else for Mediterranean shipowners to bear in mind for the future.



Thessaloniki is looking forward to a bumper cruise season ©ThPA SA

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CHLORIDE CONTAMINATION ELUDES STANDARD TESTING

Gas chromatography–mass spectrometry (GCMS) was used to detect chlorinated hydrocarbon contamination

A recent spate of contaminated bunker stems demonstrated that standard testing will not always alert shipowners to serious fuel problems. In the first three months of this year several ships experienced engine breakdowns or other issues after taking on HSFO bunkers at Singapore. It was discovered that a large batch of fuel had contained chlorinated hydrocarbons.

The Maritime and Port Authority of Singapore (MPA), IBIA and marine insurers and individual companies responded swiftly.

Marine fuel testing company VPS was among those issuing alerts on the 11 and 31 March 2022. In early April, VPS said it had identified 60 vessels that have received HSFO deliveries containing chlorinated hydrocarbons bunkered in the port of Singapore. Each of these deliveries were made from two suppliers and 12 delivery barges, between mid-February to mid-March 2022 and contained chlorinated hydrocarbon contaminants of up to 2,000 ppm.

VPS CEO Malcolm Cooper stated “We have now identified a significant quantity of bunker fuel, 140,170 metric tonnes to be precise, that has been contaminated with chlorinated hydrocarbons. This equates to US\$120 million at current market value. We would advise our customers to be very aware that this contaminated fuel remains in the supply chain and could potentially be reused or re-blended for use as a

bunker fuel. The best mitigating measure to prevent the risk of receiving and using this fuel, is to test at the point of bunkering. However, as shown in this case, standard ISO 8217 test methods are not sufficient to detect these contamination events. VPS therefore strongly recommend GCMS screening as the most effective method of detecting chemical contaminants in bunker fuel including chlorinated hydrocarbons.”

The MPA said in a statement that it was notified on 14 March that a number of ships had been supplied with HSFO containing high concentration levels of chlorinated organic compounds (COC), specifically dichloroethane and tetrachloroethylene.

MPA said that its investigations found HSFO containing high concentrations of COC was purchased by Glencore Singapore Pte Ltd (Glencore) in January and February 2022. Glencore had bought the fuel through Straits Pinnacle Pte Ltd (Straits Pinnacle), which had contracted its supply from Unicious Energy Pte Ltd (Unicious).

The contaminated HSFO was loaded at the Port of Khor Fakkan, United Arab Emirates (UAE) and shipped to floating storage facilities in Tanjung Pelepas, Malaysia to be further blended. The blended HSFO was subsequently delivered to storage facilities in Singapore. Part of the blended HSFO was also sold by Glencore to PetroChina International (Singapore) Pte Ltd (PetroChina).

MPA said it tested fuel samples taken from various sources, including the tanker which delivered the HSFO from the Port of Khor Fakkan, fuel blending facilities, and storage facilities of Glencore and PetroChina. Fuel onboard the tanker was found to contain high concentrations of COC, of up to 21,000 ppm.

Forensic fingerprinting analysis of the fuel samples taken from the tanker showed a match with the samples taken from several affected ships that had taken HSFO from Glencore and PetroChina. The MPA investigation concluded that the forensic fingerprinting analysis established with reasonable certainty that contaminated fuel onboard affected ships had likely come from the same source of fuel onboard the tanker that was loaded at Khor Fakkan.

The MPA noted that all licensed bunker suppliers in Singapore are required to test their fuel to ensure that it complies with international standards. The MPA said it had established that both Glencore and PetroChina, as MPA-licensed bunker suppliers, had carried out tests on the fuel supplied based on the international standards of petroleum products of fuel - International Organization for Standardization 8217 (ISO 8217). “However,” the MPA added, “as the current international standards do not require tests for COC, the contamination was not promptly detected.”



PetroChina and Glencore stopped supplying the affected fuel and the MPA said it had not received any report of fuel containing high COC supplied by the two companies after 31 March.

At the same time the MPA encouraged bunker buyers to request enhanced fuel testing for COC from their bunker suppliers. It also conducted further tests on both Glencore and PetroChina's fuel samples.

However, it is clear that there is an underlying issue to be addressed and the MPA is taking action. It said: "As a global bunkering hub, MPA takes bunker quality assurance seriously. MPA's quality fuel assurance measures comprise the Bunker Quality Inspection System (BQIS) and the Intensified Bunker Quality Checks (IBQC). The BQIS tests the quality of bunker supplied to vessels while the IBQC tests bunker carried by bunker tankers before supply to vessels. On average, over 1,300 bunker samples are tested annually under BQIS and IBQC to verify compliance with ISO 8217. While the occurrence of COC is rare in bunkers, MPA will include COC to the list of chemicals to be tested under both BQIS and IBQC with immediate effect."

The issue was raised at April's IMO Maritime Safety Committee (MSC105) working group meeting on 'Measures to enhance safety of ships related to use of fuel oil'. The MPA said it plans to submit a paper to the IMO on the recent contamination case in due course.

IBIA moved quickly to assess the situation and ensure its members were fully informed. In a statement it noted that the widely reported cases of problem bunker fuels supplied in Singapore during February and March had raised fears that the industry could be facing something similar to the 2018 episode of problem bunker fuel cases originating in Houston, and later spreading to other areas.

"These fears are understandable," IBIA said, "but there are some key differences. Moreover, the MPA has taken steps to bring the situation under control to prevent further supply of the affected fuels in Singapore."

The statement emphasised that chlorides are not commonly found in crude oil or marine fuels beyond trace amounts. Significant concentrations of organic chlorides in bunker fuels, like those reported in the Singapore cases, are highly unusual. Chlorinated hydrocarbons are widely used as solvents and raw materials for various products. "They do not belong in bunker fuels."

According to IBIA there appears to be universal agreement between fuel testing agencies that have reported on the cases from Singapore that they involved high concentrations, often in excess of 2,000 parts per million (ppm) of chlorinated compounds, or chlorinated hydrocarbons. Many mention dichloroethane, which is an organic solvent.

So far, the fuel testing agencies have reported using investigative GSMS testing to identify the chlorides. One such method, ASTM D7845 provides a standardised test method for GCMS to provide quantitative determination of 29 aromatic and oxygenated compounds in marine fuel oil, mainly phenols and styrenes. Chlorines do not feature on the list of chemical compounds that the ASTM D7845 test method provides precision statements and limits of detection for, so the Singapore cases would not have been found by using this standard (which is not part of ISO 8217) as a default either. The ASTM D7845 test method may be used to detect other compounds than the ones specified based on in-house development, such as chlorides, but strictly speaking it is outside its scope.

IBIA explained: "It is for these limiting reasons that testing agencies may use, for example, GCMS Head Space screening, as well as GCMS Vacuum Distillation & Acid Extraction techniques. IBIA has learned that other test methods may be applied to identify the presence of chlorides in petroleum products, namely UOP 779 Chloride in Petroleum Distillates by Microcoulometry (organic and inorganic chlorides) and EN 14077 Petroleum products - Determination of organic halogen content - Oxidative microcoulometric method (organic chlorides). Neither of these are part of

regular tests done on marine fuels (as chlorides are so rare), but they may be of use at a time when there is more testing than usual to eliminate the risk of fuels containing chlorides continuing to be supplied."

IBIA addressed the question: "When should we test for chlorides?" It advised that exactly how to test for chlorides will vary between fuel testing for agencies, depending on how laboratories are set up and equipped.

"Of course," IBIA noted, "there is huge concern in the market that fuels containing chlorides continue to be supplied and as such those who are worried will ask for extra testing. However, it may be more efficient to target areas and circumstances when there is reason to suspect that there is a risk of chloride contamination. At present, that could be HSFO bunkered in Singapore during February and March from the suppliers/barges affected. As MPA says it has informed all the ships that received these fuels, those should be known."

Some ships may choose to use the affected fuels, depending on concentration level and dilution, in which case they should, IBIA cautioned, closely monitor operations for potential adverse effects, and stop using them if they observe problems that may relate to these fuels. This will be the nature of advice from some fuel testing agencies and classification societies. Others that received affected fuel may choose to debunker, in particular if they have used some of it and experienced operational issues, or they have test results indicating a very high concentration of chlorides.

IBIA also noted that fears that these chlorinated hydrocarbons could find their way into the supply chain either from the contaminated cargo being shipped out of Singapore, or these fuels being debunkered and subsequently blended into the supply chain in other ports.

One general piece of advice to bunker buyers who are afraid of this happening is to seek assurance from your supplier that the fuel is fit for purpose, IBIA said. "Also," it added, "pay close attention to the collection, witnessing and documentation of bunker samples."



Alfa Laval E-PowerPack is converting waste heat directly into electrical power. ©Alpha Laval

TURNING WASTE HEAT INTO ELECTRICITY

Waste heat is a readily available but under-utilised energy source on board, claims Alfa Laval

Heat in the engine exhaust gas accounts for 50% of the energy from combusted fuel, and there is additional heat that could potentially be recovered from steam and liquids.

Equipment manufacturer Alfa Laval says its new E PowerPack means shipowners can use these heat sources to achieve fuel savings and comply with sustainability requirements.

The E-PowerPack uses Organic Rankine Cycle (ORC) technology to turn waste heat into electrical power. By means of a liquid-gas phase change, it can generate power from both high-temperature and low-temperature heat sources, ranging from engine exhaust gas at 550°C to jacket cooling water at 75°C. It is also a modular solution, allowing units with a net electrical output of up to 100 kW or 200 kW to be combined in a larger system.

By producing power from waste heat, the E-PowerPack reduces fuel consumption and use of the auxiliary engines. The manufacturer claims this can pay back the cost of installation within 2 or 3 years. The fuel use reductions improve EEDI/EEXI and CII.

The company says that because alternative fuels including carbon-neutral methanol

and carbon-free ammonia will be more expensive, shipowners will need savings to offset their higher costs. It claims that "solutions like the E PowerPack will be key to using these fuels at all".

"Methanol and ammonia contain less energy than today's marine fuels, and it will be a challenge to produce sufficient amounts for the world fleet using only renewable energy sources," says Alfa Laval's Danny Ingemann, Head of Global Sales. "This is yet another reason for vessels to maximize their fuel efficiency, ensuring that little or none of the fuel energy goes to waste."

LNG retrofit combined with box ship jumboisation

Gas containment system specialist GTT, marine consultancy and engineering firm

Alwena Shipping and COSCO Shipping Heavy Industry (Zhoushan)shipyard, have received an approval in principle (AiP) from classification society Bureau Veritas (BV) for a new concept, combining LNG retrofit and jumboisation, applied to large container ships. Jumboisation is a technique in shipbuilding consisting of enlarging a ship by adding an entire section to it.

GTT carried out the LNG Mark III membrane tank design while its integration into the ship was designed and validated by Alwena Shipping. CHI Zhoushan shipyard validated the operational aspects of the project, including the work sequence, planning and workforce resources.



An LNG retrofit is being combined with jumboisation. ©GTT



SHIPPING'S "HUGE" FUTURE FUEL DEMAND

New study predicts future-fuel demand for shipping industry equal to entire current global production of renewables

A report commissioned by the International Chamber of Shipping (ICS) estimates that the global shipping industry will require the equivalent of the world's entire current renewable energy demand in order to replace fossil fuel use.

Fuelling the Fourth Propulsion Revolution, authored by Stefan Ulreich from Germany's University of Applied Sciences highlights the "enormous opportunity" for investors and governments represented by the global shipping industry's need for new, green fuels'.

To reach the industry's 2050 (net) zero goal, shipping's fuel needs would require electricity from renewable sources to increase by up to 3,000 TWh, the report asserts. That is the equivalent of the entire world's current renewable energy production.

It found that to achieve the IEA's Net Zero Emissions by 2050 scenario, the world would need an 18-fold increase in existing renewable production capacity.

Taking the global trading of hydrogen as an example, the report identified

substantial potential benefits for exporting and importing countries, particularly in the Global South. This is due to the expected production cost differentials of such fuels across the world (expected range of €72.60/MWh to €156.40/MWh in 2050).

The cost range reflects the abundance of renewable potential, such as solar and wind power, in many African and Latin American countries, which can generate the electricity needed in the production of hydrogen fuels at much lower cost.

The report identified the first movers who are looking to seize these investment opportunities, including Germany, Algeria, and Chile, who have signed multiple bilateral agreements on the production of hydrogen fuels, which are seen as key for powering ships.

Estimates show a production potential of more than 10,000 TWh for (net) zero carbon fuels in coastal regions worldwide. Shipping views investment in these areas as key to helping countries realise the potential gains present in their bilateral agreements.

The ICS statement makes the point that "there continues to be a lack of investment in zero-emission technologies, with the IEA highlighting that the total amount of corporate R&D investment for maritime has decreased, from \$2.7 billion in 2017 to \$1.6 billion in 2019."

"Yet," ICS adds, "by 2050, at least half of (net) zero fuels traded globally are expected to be moved by ships, according to the International Renewable Energy Agency (IRENA). Today's report indicates that this makes maritime a key enabler of the decarbonisation of land-based industrial sectors."

Ulreich comments: "To meet the enormous demand for hydrogen-based fuels in the Global North, production centres in the Global South are urgently needed. While governments are beginning to realise the need to transition to fuels like hydrogen, little thought to date seems to have been given to how they will actually transport those fuels. Shipping must be part of wider energy transition negotiations, and shipping and ports are going to need investment. But with this investment comes huge opportunity for return."



Environmental News Round up Shipowner's nuanced welcome for ETS proposals

Shipping organisations have expressed support for proposals to bring shipping within the EU's Emission Trading System (ETS), despite their underlying dislike of unilateral measures and concerns about how the system will be implemented.

European shipowners' organisation ECSA said it welcomed "the strong cross-party support by the European Parliament for key provisions under the revised Emission Trading System for shipping".

ECSA specifically welcomed the parliament's commitment to enforce the 'polluter-pays' principle, by ensuring the mandatory pass-through of the ETS costs to the commercial operators of the vessels through contractual clauses. ECSA also supported the proposal of the Parliament to create a sector-dedicated fund and to earmark 75% of the revenues generated by the shipping allowances to the energy transition of the sector.

"Although our first preference has always been an international regulation for shipping at the IMO level, European shipowners recognise that the sector should contribute its fair share to address the climate crisis at the EU level as well. The mandatory pass-through of the ETS costs to the entities responsible for operational decisions will ensure the proper implementation of the 'polluter pays' principle. Although the position of the Parliament needs to be improved on certain points, it is a significant step forward," said Philippos Philis, ECSA's President.

"A lot of work still needs to be done but the outcome of the vote today is a strong signal that the European policy-makers are keen to listen to the proposals of the shipping sector. The earmarking of the revenues is essential to finance R&D projects and to bridge the price gap between cleaner and conventional fuels. 80% of the current ETS revenues are used for the energy transition of the European economy and we want to see the same happening for shipping. It's a make-or-break moment for the decarbonisation of shipping and the competitiveness of the sector" said Sotiris Raptis, ECSA's Secretary-General.

A statement from global liner shipping body World Shipping Council (WSC) also used warm words to welcome the parliament's votes. However, it is focusing on trying to persuade the EU to apply the ETS only to internal shipping and not to international routes.

WSC said it was a misconception among EU lawmakers involved in revising the ETS that input that aiming for a wider scope, outside of the EU, is more environmentally ambitious. "In fact," WSC countered, "the opposite is true. As the EC has shown in its impact assessment, a wider geographical scope introduces environmentally and economically damaging carbon leakage. Extra-EU scope will likely provoke significant trade tensions that undermine global cooperation in combating climate change while encouraging countries to seek national revenues through the taxation of international trade through independent and overlapping regulations. If the EU prescribes rules extending across oceans and into the waters of non-EU countries, achieving an effective global

agreement will be rendered far more difficult."

By contrast, according to WSC, an intra-EU scope would: ensure the right economic incentives for the adoption of green shipping technologies; minimise the potential for carbon leakage that would undermine EU Green Deal goals; enhance Member State and EU port competitiveness and position the EU to drive global greenhouse gas policy through the IMO.

Green credit guarantee

Swedish product tanker company Furetank has become the first shipping company to be granted green credit guarantee by the Swedish Export Credit Agency for financing a vessel built to high environmental and climate standards. This is the first green credit guarantee that has been granted to the shipping industry and only the second one issued since the agency was given the power to do last year.

LNG fuelled bulk carrier orders "peaked"

A decline in orders for bulk carriers featuring dual-fuel LNG propulsion has been noted in the latest quarterly report from research and forecasting company Maritime Strategies International (MSI).

Explaining why interest in LNG-fuelled ships may have "peaked", MSI notes concerns over their long-term viability against tightening regulation and growth in availability of ammonia and methanol-ready dual fuel engines.

According to MSI, concern over the shape of future low carbon regulations is partly to blame for muted dry bulk newbuilding orders during 2021, despite bulkers registering the highest average annual earnings since 2007/08. Contracts declined sharply over the second half of last year and have all but disappeared in 2022: for the year to March, just seven new dry bulk contracts have been reported.

Carbon credit initiative

The first tranche of carbon credits from the world's largest mangrove restoration project have been sold in a series of major deals for the Blue Carbon market.

Details of offtake agreements for the Delta Blue Carbon Project (DBC-1) were disclosed this morning by the project's owners Indus Delta Capital (IDC), the Government of Sindh, Pakistan, and Pollination. Carbon Growth Partners, Trafigura and Respira International will purchase the first verified offsets generated by the pioneering programme in transactions which could see up to three million carbon credits traded.

Singapore based commodities and bunker trader Trafigura's Global Head of Carbon Trading Hannah Hauman said: The Delta Blue Carbon Project is exceptional in both its scale and execution. It has the distinction of being the world's largest Blue Carbon project, providing significant community benefits, such as enhanced livelihoods, clean water supply, and biodiversity for vulnerable and threatened species. Our investment, alongside others, will enable this work to continue to deliver community, biodiversity and climate benefits, producing much needed carbon removals as the world progresses to Net Zero."

Isle of Man Ship and FuelTrust in green ship deal

The Isle of Man Ship Registry (IOMSR) has recognised the use of FuelTrust's AI and blockchain-based solutions to qualify vessels for its Green Ship status and fee discount. IOMSR will use FuelTrust's fuels

and emissions digital technology to validate vessels for the flag's Green Ship scheme and to collaborate on further projects to incentivise and enable emissions reductions.

The Green Ship discount programme, which comes into effect on 1 April 2022, is available to operators of cargo ships, commercial yachts or passenger ships that invest in biofuel, alternative fuels, wind, or shore-side energy technology. FuelTrust and IOMSR say that they will collaborate further to explore methodologies for tracking emissions reductions from zero-carbon fuels, among other projects, to reduce GHG emissions.

Maersk's Egyptian green fuel deal

Shipping group Maersk and Egyptian authorities have signed a partnership agreement to explore the establishment of large-scale green fuel production in Egypt.

Maersk is joining forces with the General Authority for Suez Canal Economic Zone (SCZone), the Egyptian New and Renewable Energy Authority (NREA), the Egyptian Electricity Transmission Company (EETC), and the Sovereign Fund of Egypt for Investment and Development (TSFE). The parties will be conducting a feasibility study before the end of 2022 to examine an Egypt-based hydrogen and green marine fuel production, powered

by renewable energy with Maersk as committed offtaker.

"Egypt has excellent conditions for renewable energy production and ambitions to become global leader in the green energy value chain. We are very excited to be able to explore options together, drawing on our more than 100 years of business relations in the country," says Henriette Hallberg Thygesen, CEO, Fleet & Strategic Brands, Maersk.

RINA and Fincantieri in R&D MoU

Italian classification society RINA and shipbuilding and technology group Fincantieri have signed a memorandum of understanding to develop synergies in the field of decarbonisation, with a focus on alternative fuels, carbon capture and renewable energies in the shipping sector.

The agreement sees the involvement of the two companies in initiatives related to technology scouting, the analysis, study and simulation of new fuels and energy vectors - in particular hydrogen and ammonia - and carbon capture. The collaboration will also include Approval in Principle (AIP) activities, a risk-based approach to classification that allows new designs and concepts to be validated on the basis of safety equivalence, and the qualification of innovative projects and technologies.



IMO's London HQ ©iStock



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UKRAINE WAR

Russia's invasion of Ukraine causes massive disruptive effects on the shipping and bunkering industries

Within days of the war starting, shipping bodies and companies were cutting links with Russia. Soon, almost all international regular shipping services to Russia had ceased. Much of the Black Sea became a war zone as Ukrainian ports were blockaded and eventually all in the Black Sea, except for Odessa, and the Sea of Azov fell into Russian hands. Meanwhile St Petersburg stopped being a top cruise ship destination, and significant bunker port, virtually overnight.

The shipping services sector, notably including the classification societies pulled out of Russia while bunker trading and supply companies with offices or operations in Russia closed them down, including Dan-Bunkering's office in Kaliningrad.

In early March IBIA issued a statement saying: "IBIA joins others in condemning Russia's invasion of Ukraine. Furthermore, IBIA notes the widespread international condemnation of Russia's hostile actions in Ukraine, as well as the imposition of significant sanctions against Russia and

Russian interests by a large number of countries. IBIA urges all members to be vigilant in all their business transactions to ensure they are not in breach of any applicable sanctions."

It added: "In light of this tragic and extraordinary situation, after careful consideration, the Board of IBIA has decided to suspend all services to Russian members of the Association until further notice."

IBIA's statement concluded: "Our thoughts are with the people of Ukraine, and we support international calls for hostilities to cease immediately to allow peace to return to the region as soon as possible."

The EU, UK, US and other major port states brought in bans on Russian-owned ships, making their operation impossible in many parts of the world.

The energy markets reacted quickly to the start of the war. Soon after Russian troops moved into Ukraine, oil prices went above US\$100 per barrel for the first time in seven years while LNG rose to around \$5 per MMBtu, compared to about \$2.75 a year previously.

Marine insurer Allianz Global Corporate & Specialty warned that a prolonged conflict could potentially reshape global trade in energy and other commodities. In its Safety & Shipping Review 2022 it cautioned that an expanded ban on Russian oil could contribute to pushing up the cost of bunker fuel and impacting availability, potentially pushing ship owners to use alternative fuels. It added that, if such fuels are of substandard quality, this could result in machinery breakdown claims in future.

News from around the bunker sector WFS sees bunker profits soar

World Fuel Services' (WFS) marine business generated gross profit of \$47.0 million in the first quarter of 2022, out of a company total of \$230.9 million, an increase of 85% year-over-year. It was principally related to the impact of the rise in global oil prices and the resulting constrained credit environment.

WFS chairman and CEO Michael J. Kasbar, said: "Our financial performance this quarter again demonstrates the value of our diversified business model, where challenges in our aviation business were counterbalanced by strong results in our marine and land businesses."



Singapore deliveries drop

Bunker fuel volumes delivered in Singapore in the first four months of 2022 were all down on the same months last year.

Figures published by the Maritime and Port Authority of Singapore (MPA) show 4.03 million tonnes were delivered in January 2022 compared to 4.50 million tonnes in January 2021, while 3.50 million tonnes were delivered in February (compared to 4.12 million tonnes a year earlier), 3.77 million tonnes in March (compared to 4.12 million tonnes) and 3.74 million tonnes were delivered in April (compared to 4.26 million tonnes).

Last year's total figure for bunker delivered was 49.99 million tonnes, the highest total since 2017.

Singapore bunker theft kingpin jailed

One of the masterminds behind a massive conspiracy which managed to steal some 300,000 tonnes of MGO from Shell Eastern Petroleum's Pulau Bukom refinery has been jailed for 29 years. The gang sold the fuel at under market value in the local bunker market.

Juandi Pungot pleaded guilty to 36 charges including corruption, laundering benefits from criminal conduct, and conspiracy to commit criminal breach of trust as a servant.

When sentencing, Justice Hoo Sheau Peng described the offences as "exceptionally serious" and took into consideration another 49 charges. Singapore's Today Online reported that the judge told the court that Juandi's crimes "hit at the heart of the bunkering and petrochemical industry, which is a key component of Singapore's economy" and that the "massive scale" of the theft, committed by two syndicates of Shell employees on Pulau Bukom, was "unprecedented".

This case is just one of a number concluded or still underway relating to the thefts. In April, 12 former surveyors were charged with corruption in connection with the Pulau Bukom thefts.

Fujairah sales ease back in April

Bunker sales Fujairah marine rose 13% in March, according to reports, before falling

back in April by 1.4% both year-over-year and compared to the previous month.

According to Reuters March bunker sales volumes were about 691,000 cubic metres, equivalent to about 662,000 tonnes. S&P Global Commodity Insights reported sale volumes of 664,870 in April. It noted HSFO had a 17.5% share of total sales, up slightly from 16.8% a year before.

Commercial tankers could fuel NATO warships at sea

The British Royal Navy (the RN) says it has been paving the way for NATO to use commercial tankers in times of crisis.

Royal Fleet Auxiliary ship Tidesurge, which typically operates in a Royal Navy task group, linked up with the Maersk Peary in Lyme Bay to test whether oil could be transferred between the two vessels.

The RN says that calling upon civilian tankers to sustain the fleet could prove crucial if the military tankers are unable to stock up on supplies by putting into port. It relied on extensive support from civilian tankers during the Falklands



RFA Tidesurge and the Maersk Peary ©RN



Zero-emission self-discharging hydrogen-fuelled bulk carrier, With Orca

HYDROGEN PLUS WIND POWER FOR BULKER

Norwegian zero-emission bulk carrier project receives classification society approval in principle

Lloyd's Register (LR) has awarded Approval in Principle (AIP) to Norwegian ship owner Egil Ulvan Rederi for a zero-emission self-discharging hydrogen-fuelled bulk carrier, to be named the With Orca. The vessel is planned to enter into a long-term transport contract with cargo owners Felleskjøpet Agri and Heidelberg Cement.

It is intended that the ship will be fully zero-emission in all operations. It will be powered by hydrogen, stored onboard in compressed form, and the hydrogen combustion engine will be optimised for increased efficiency. The vessel will also be fitted with two large rotor sails.

She will have a fuel cell system for energy production in low load conditions. A significant part of the energy required to operate the 88 metre, 5,500 tonne vessel will be harvested directly from the wind through two large rotor sails. The vessel has the ability to store excess energy in batteries.

LR awarded the AIP after completion of a risk-based HAZID certification. The vessel is designed by Norwegian Ship Design and the hydrogen will be supplied by Statkraft. She is scheduled to enter operation in early 2024.

The vessel's sailing route will mostly be in open waters in the North Sea, where, her owner says, weather conditions are ideal for wind-assisted propulsion. The With Orca will transport the cargoes of Heidelberg Cement and Felleskjøpet, carrying aggregates from western to eastern Norway and grain in the opposite direction.

Mark Darley, LR Marine and Offshore Director, said: "Through our thorough risk-based analysis we are happy to award approval in principle for the use of hydrogen as a sustainable and safe solution for vessel propulsion. LR is a pioneer in maritime decarbonisation and is supporting our clients to assess the technological, commercial and societal viability of multiple transition pathways."

Ivar Ulvan, Owner and Project Manager of Egil Ulvan Rederi, said: "Receiving the AIP from Lloyd's Register is an important milestone for us. We have been working with the project for more than one and a half years, and the AIP confirms that we have made good design choices in our effort to create a safe, efficient and feasible concept. We have learned a lot in the process towards the AIP, and LR has been very professional. We want to

highlight their facilitation of the HAZID, which was skilfully carried out to an impressive level of detail. We look forward to continue working towards realising this groundbreaking project."

Gjermund Johannessen, Norwegian Ship Design CEO, said: "We have been working hard evaluating different solutions for the hydrogen system onboard. We have developed a unique and safe hydrogen concept, and we used hydrogen's special properties as one of the means to achieve this."

Per-Kenneth Øye, Chief Transport Officer at Felleskjøpet Agri SA, said: "Our aim is to achieve sustainable fleet renewal, phasing out old tonnage. The project was initiated to set the standard for others to follow, and we are pleased that we now have accomplished this important step."



Ulsteins Thor project could supply electric power for a fleet of expedition cruise vessels. © Ulstein

GOING NUCLEAR

A new project could see cruise passengers touring remote areas of the world in ships powered by batteries fed by floating nuclear power plants

In a statement that calls the use of thorium a “silver bullet discovery”, Norwegian shipbuilder Ulstein has launched a vessel concept that it says could make “the vision of zero emission cruise operations a reality”.

The Ulstein Thor design for a 149-metre replenishment, research and rescue design will feature a thorium molten salt reactor (MSR) to generate, Ulstein says, “vast amounts of clean, safe electricity”. It adds: “This enables the vessel to operate as a mobile power/charging station for a new breed of battery driven cruise ships.”

There certainly has been a revival of interest in thorium recently, with China currently working on a pilot MSR. However, the technology certainly has critics too, and if this project does start to move forward there are bound to be opponents trying to ensure the silver bullet is just a lead balloon.

Ulstein, however, believes strongly in the concept. It says its Thor project “may be the missing piece of the zero emissions puzzle for a broad range of maritime and ocean industry applications”.

To prove the feasibility of using the technology, Ulstein has also developed its SIF concept, a 100 metre long, 160 personnel-on-board capacity, zero emission expedition cruise ship. This Ice Class 1C vessel is intended to run on next generation batteries, using the Thor mother ship to recharge while at sea.

Ulstein CEO Cathrine Kristiseter Marti comments: “We have the goals, ambition and environmental imperative to switch to zero emission operations, but, until now, we haven’t had the solution. We believe ‘Thor’ might be the answer we’ve been looking for. Thor is essentially a floating, multi-purpose power station that will enable a new battery revolution.”

She added: “Expedition cruise ships operate in increasingly remote, and environmentally fragile, areas. At the same time the industry faces growing pressure from diverse stakeholders to preserve nature as it is and ban the environmental impact of cruising. ‘Thor’ enables replenishment of energy and supplies on site, while also boasting the technology to facilitate rescue operations, as well as conducting research tasks. It is, in effect, a crucial piece of infrastructure to support sustainable and safer operations. ‘Thor’ literally has the power to change our entire industry.”

Ulstein highlights that an expert in the field of thorium and nuclear power generation Jan Emblemsvåg, Professor at Norwegian University of Science and Technology supports the project. He says: “MSRs have enormous potential for enabling clean shipping. There is so much uncertainty over future fuels, but here we have an abundant energy source that, with the right approach, can be safe, much more efficient, cheaper, with a smaller environmental footprint than any existing alternative.”

He concludes: “From my perspective I see this as the most viable, and potentially the only credible, solution for a zero emission fleet that can operate under commercial terms and cost levels. The ‘Thor’ concept is exactly the kind of innovation we need for sustainable success at sea.”

Both the Thor and SIF incorporate Ulstein’s X-Bow design, intended to achieve “greater operability, comfort, operational functionality and fuel efficiency”.

The Thor design features helicopter pads, firefighting equipment, rescue booms, workboats, autonomous surface vehicles and airborne drones, cranes, laboratories, and a lecture lounge.

Meanwhile, the expedition cruise vessel SIF can accommodate up to 80 passengers and 80 crew, “offering silent, zero emission expedition cruises to remote areas, including Arctic and Antarctic waters”.

“Here we have two concepts in one to showcase a cleaner, safer and more sustainable way ahead for cruise ship owners and operators, not to mention maritime in general,” says Ulstein chief designer Øyvind Kamsvåg. “Thor and SIF demonstrate what is possible when we approach challenges from a new direction.”



Methanol Liquid wind

STUDY BOOSTS E-METHANOL'S GREEN CREDENTIALS

E-methanol producer Liquid Wind says a lifecycle assessment concludes E-methanol can have carbon equivalence up to 94% lower than fossil fuels

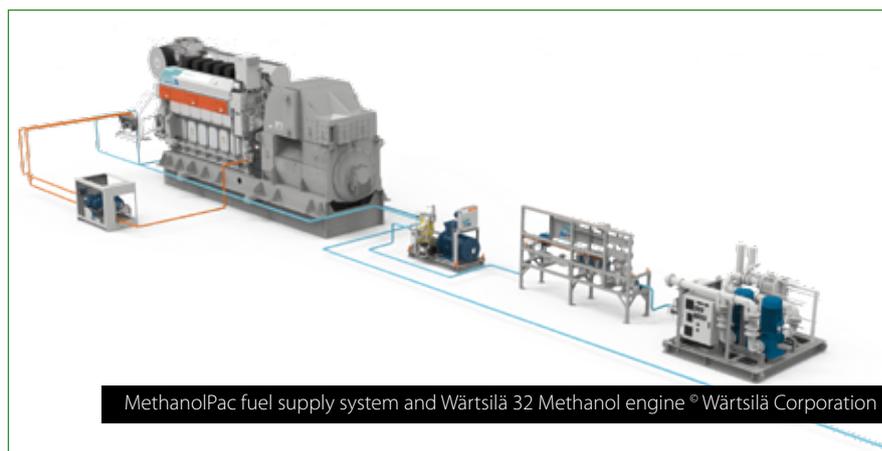
E-methanol is methanol produced by combining hydrogen produced from renewable energy and captured carbon dioxide from industrial sources.

Liquid Wind says that, "to meet the growing demand for carbon neutral fuel and the need to reduce CO₂ emissions", it is developing FlagshipONE, a commercial-scale renewable E-methanol facility which will capture CO₂ emissions from a biomass combined heat and power plant.

To quantify the environmental benefit, Liquid Wind performed an internal lifecycle analysis (LCA) to determine the emissions of the E-methanol to be produced at FlagshipONE, considering all stages of the E-methanol lifecycle and identifying the GHG reduction potential compared to conventional fuels.

The well-to-gate emissions of FlagshipONE E-methanol (life-cycle emission when leaving the production facility) are relatively small, at around -1.3 kg CO₂eq per kg of E-methanol produced. About -1.4 kg of CO₂ is from capturing the carbon and is credited as negative emissions.

When the scope is expanded to include the 'use phase', well-to-wake, the emissions of transport and combustion are considered. The captured CO₂ is re-emitted, which results in a net positive climate change potential of about 5 gCO₂eq/MJ.



MethanolPac fuel supply system and Wärtsilä 32 Methanol engine © Wärtsilä Corporation



Considering life cycle emissions, fossil-based fuels emit around 85-90 gCO₂eq/MJ, which results in a reduction of about 94% when replaced with wind-based E-methanol. The well-to-wake emissions of E-methanol are compared to further marine fuel alternatives based on data provided by Chalmers University, Sweden.

“Together with our consortium partners, Liquid Wind is demonstrating the potential that sustainable marine fuels can make to reducing carbon emissions when carbon is considered on a lifecycle basis,” says, Claes Fredriksson, CEO and founder of Liquid Wind. “With further regulatory alignment, marine fuel buyers and end users can understand how to make their operations cleaner and greener and demonstrate that to their stakeholders.”

Methanol Updates

Wärtsilä's methanol fuel supply system

Technology company Wärtsilä has developed a dedicated fuel supply system for methanol, MethanolPac. The company says the new system will enable it to deliver methanol-capable fuel and power systems across a wide range of vessel segments.

In a statement, Wärtsilä notes: “Methanol is a widely available fuel that is carbon neutral when produced from renewable sources and is easier to handle than many other alternative fuels. But with very few vessels currently operating on methanol, industry experience of integrating such systems is limited.”

MethanolPac's first use will be in conjunction with the first installation of the Wärtsilä 32 methanol engine, on a wind turbine installation vessel under construction for Dutch dredging and offshore ship operator Van Oord.

Methanol fuel cells

Loan financing from the Danish Green Investment Fund is set to enable Blue World Technologies to go from pre-series production to actual series production of methanol fuel cells this year. Over the past year, Blue World has been working on building a large-scale production of methanol fuel cells that serve as a green alternative to the internal combustion engine and diesel generator.

The €7.5 million loan should allow the company to move from pre-series production to large scale production this year.

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METHANE SLIP ROW

Proponents of LNG as a pathway fuel on the way to zero carbon have responded strongly to a campaign to persuade EU politicians that supporting LNG as a marine fuel is a mistake

In a move aimed at EU lawmakers, campaign group Transport & Environment (T&E) says an investigation it has carried out into LNG-powered ships has uncovered “significant amounts of invisible methane being released into the atmosphere, exposing Europe’s dirty secret at sea”.

T&E’s investigation was limited to two ships. It says that was “due to the complexity of carrying out such an investigation”. It took place “on a clear November day at the port of Rotterdam...using a state-of-the-art infrared camera, with a special filter to detect hydrocarbon gases”.

The campaign group asserts: “As LNG is typically 90% methane, any unburnt fuel that slips through the engine will also be primarily composed of the climate warming gas. T&E was able to clearly observe significant methane emissions from two ships.”

A widely distributed T&E press release says: “Infrared images show unburned methane - a potent greenhouse gas - being released from supposedly ‘green’ LNG ships, a damning new investigation by Transport & Environment (T&E) shows. European politicians are playing with fire in their support for LNG, says T&E, with methane over 80 times more climate warming than carbon dioxide over a 20-year period.”

In the same release Delphine Gozillon, shipping officer at T&E, says: “Europe has a dirty secret at sea. In promoting LNG ships, European policymakers are locking us into a future of fossil gas. The ships may be painted green, but, beneath the

surface, the truth is that most LNG ships on the market today are more damaging for the climate than the fossil ships they’re supposed to replace.”

Not surprisingly, LNG-promoting group SEA-LNG is very unhappy about T&E’s claim and its lobbying of European politicians. In a statement it says: “Methane slip from LNG-fuelled vessels is a recognised problem that the maritime industry has been actively addressing for well over a decade. SEA-LNG is disappointed to see the ongoing campaign of misinformation that misrepresents the progress the industry has made, and is continuing to make, to reduce slip. Sensationalist claims lacking scientific evidence are a transparent attempt to distract the industry from investing in LNG – a solution that can deliver immediate greenhouse gas emissions reductions and provide a low risk, incremental pathway for full decarbonisation of the maritime sector.”

The statement continues: “At SEA-LNG, we believe in and support transparent and professional studies and analyses using current data and peer-reviewed by academics. We are confident in the analysis published in 2021 by ESG lifecycle experts, Sphera, based on primary data from all major engine manufacturers and reviewed by independent academic experts. This study shows that LNG-fuelled engines have GHG benefits compared with current oil-based engines of between 20% to 30% for 2-stroke slow-speed engines, and 11% to 21% for 4-stroke medium speed engines, inclusive of methane slip. With the ongoing steady technological advancements, the GHG benefits will only improve in the

future versions of LNG-fuelled engines as the technologies are more widely adopted by the shipping sector.”

SEA-LNG makes the point that methane slip represents a waste of precious energy. It notes that engine manufacturers are commercially incentivised to reduce slip to improve overall efficiency and performance. LNG-fuelled engines are available now which have minimal levels of slip: these engines represent at least half the LNG newbuild order book.

The group adds: “For those technologies for which slip remains an issue, levels have fallen four-fold since the early 2000s and engine manufacturers continue to identify technological pathways that will mean all LNG-fuelled engines have minimal levels of methane slip by 2030, if not sooner.”

Meanwhile, Japanese classification society ClassNK says it has issued an approval in principle (AIP) for what it describes as the world’s first methane oxidation catalyst system. According to ClassNK, it is designed to reduce methane slip by placing a methane oxidation catalyst in the exhaust of an LNG-fuelled engine or generator that contains unburned methane and oxidizing the methane over the catalyst.

It has been developed by Hitachi Zosen Corporation, Mitsui O.S.K. Lines and Yanmar Power Technology Co.



SPLITTING LNG

A new tanker design incorporates a system that uses steam to produce hydrogen, which fuels the vessel's engine, and CO₂

Italian classification society RINA has given approval in principle (AIP) to Swedish-based FKAB Marine Design's hydrogen powered medium range (MR) Tanker. RINA says this is the first AIP of a design using currently viable technology and fuels that achieves IMO 2050 targets.

According to RINA the concept was conceived by the classification society and designed by FKAB. The system is based on combining the ship's fuel (LNG) with steam to produce hydrogen and CO₂.

Antonios Trakakis, Greece Marine Technical Director at RINA, said: "To meet CO₂ reduction targets, shipping is faced with the challenge of having solutions which either rely on fossil fuels, but which still require technology to mature, or on new, zero carbon fuels, the availability of which is still far from being guaranteed. This new design enables the use of hydrogen as a fuel today without the need for bunkering and storage on board and exceeds IMO 2050 targets for 70% reduction of carbon intensity."

The vessel design is the result of a joint project with ABB and Metacon subsidiary Helbio and is based on combining LNG with steam in a Helbio gas reformer to split LNG molecules into hydrogen and CO₂. Hydrogen is then directly used to fuel the internal combustion engines and fuel cells

in a hybrid marine power system produced by ABB. The CO₂ is captured by splitting the LNG molecules, rather than from exhaust gas.

The system is being promoted as ensuring a competitive Carbon Intensity Index (CII) rating, which has increasingly stringent rating thresholds towards 2030, throughout the whole service life of the vessel, not only when getting closer to 2050.

Using this design, hydrogen usage can be progressively increased to maintain a top CII rating throughout the life of the ship, reducing CO₂ emissions in a parallel slope with the applicable regulations. The ship can meet full decarbonisation targets by either running the engine on 100% hydrogen, or by producing all the power needed by fuel cells. In this way, the owner can decide the rate of CO₂ reduction.

The proponents of the design appear to acknowledge that dealing with the CO₂ produced will be a challenge. RINA says: "Carbon disposal will be a vital technology for the future to meet global decarbonisation goals across all sectors. The concept will not require onshore carbon disposal technology to be available before 2032.

Andreas Hagberg, Head of Sales & Marketing Department at FKAB, commented: "The concept is revolutionary because it does not require any portside hydrogen infrastructure. The hydrogen is created onboard the vessel and all necessary equipment can be easily fitted on deck, so ship owners can convert existing vessels. The fuel cells have been specifically developed to produce more power and fewer emissions."

CO₂ is liquefied by the cryogenic steam from the LNG and can be used as the inert gas for the tanker. No additional bunkering, aside from normal LNG, is required. The hydrogen produced can be used to power the main engine, or fuel cells, or a hybrid of the two. The AIP covers the hybrid option.

Trakakis concluded: "Now that the concept has been brought to the real world through an immediately applicable CII A rated design, this opens the door to reduce emissions in a much shorter timeframe. The AIP is for an MR tanker, but the technology can be applied to a wide range of vessel types and sizes."



Finnlines is investing in cold ironing. © Finnline

SWITCHING ON

The use of electricity continues to increase, both as shore power when ships are alongside and as propulsive power using batteries or fuel cells

Plugging into shore power has been mandatory in the US state of California's main ports for years but 'cold ironing' is becoming more common elsewhere. Several government ministers and port authorities signed a joint commitment for the electrification of ports by 2028 while attending the One Ocean Summit that was held in France in February.

Ro-ro and ropax operator Finnlines says it is equipping three vessels with Yara Marine's shore power solution to reduce fuel consumption, emissions, and noise in port.

Thomas Doepel, COO of Finnlines, says: "Finnlines is committed to providing sustainable and responsible transportation options in the Baltic and North Seas. Our investment in smart technologies showcases our drive to reduce carbon emissions from our fleet and share our environmental performance with customers and stakeholders."

Setting up shore power solutions can be technically challenging, particularly in cases where operators are using two or three different systems on board that are not compatible with each other. Yara Marine's turnkey shore power solution is designed

to provide an answer to this problem and so reducing the complexity of installation, and mitigating project-related risks, such as fleet-wide installations.

Meanwhile the development of more efficient fuel cell technology is moving ahead rapidly, with the development of solid oxide fuel cell technology for ships. The Korea Register (KR) recently signed an MOU with STX Energy Solutions (STX ES) and Daewoo Shipbuilding & Marine Engineering (DSME) to work together on 'The technology standardization and commercialization of solid oxide fuel cells (SOFC)'.

The SOFC is a new low-carbon, high-efficiency renewable energy power generation technology that produces electricity through the electrochemical reaction of oxygen and hydrocarbons from oxidizing LNG.

Under the MOU agreement, each company plans to apply their expertise and strengths, for example by enacting and revising the technical standards to fit SOFC on ships, and by deriving and performing joint research tasks.

STX ES will be in charge of developing and supplying SOFC systems for ships. DSME will manage the onshore testing and evaluation of SOFC systems for ships as well as the SOFC ship application concept research and demonstration project planning and execution. KR will evaluate and certify the technical capabilities of SOFC products for ships and will ratify and revise related regulations for safe ship mounting and operation.

In a separate development, the Corvus Energy Hydrogen Fuel Cell System developed through the H2NOR project has received approval in principle (AIP) by DNV for its safety solution, enabling simplified placement of the system inside a ship's hull. Corvus says this is the first fuel cell system (FCS) designed to be inherently gas safe meaning that the surrounding machinery space will be considered gas safe under all conditions. This design significantly reduces the number of requirements for the safety and ventilation support systems, thereby enabling a more seamless integration onboard the ship.



The system can serve as the main power source or as an additional power source to increase fuel flexibility onboard. It is being developed by the H2NOR project, a consortium coordinated by Corvus together with partners Toyota Motor Europe, Equinor, shipowners Norled and Wilhelmsen, ship design company LMG Marin, the NCE Maritime CleanTech cluster and R&D institution the University of South-Eastern Norway (USN). The project is intended to develop and produce modularized and cost-effective PEM fuel cell systems for the international marine market. The project has received EUR 5.9 million in funding from state agency Innovation Norway and The Research Council of Norway, bolstering Corvus' front-runner position in clean technology.

H2NOR is scheduled to demonstrate its first marine fuel cell system on a vessel in 2023 and it is intended that the product will be commercially available from 2024.

Fuel cell safety

French classification society Bureau Veritas (BV) has released a new rule note (NR 547) on fuel cell power systems on board ships. It covers safety requirements for ships using any type of fuel cell technology, providing rules for the arrangement and installation of fuel cell power systems and the delivery of electrical energy.

In a statement BV says: "Over the last few years, fuel cells have proved to have strong potential to help decarbonise the maritime industry. The technology, which is based on an electrochemical reaction like that in batteries, can run continuously without recharging as long as energy is provided. Fuel cells can bring significant environmental benefits, eliminating NOx, SOx and particle emissions while reducing CO₂ emissions compared with diesel engines. However, this technology comes with a number of challenges that must be addressed to ensure safety."

NR 547 outlines requirements on the design, construction and installation of fuel cells systems to ensure that the safety of the ship is maintained. The aim is to identify and mitigate risks to persons on board, the environment and the structural integrity of vessels. BV says: "Fuel cell

systems and ship design must limit the risk of explosions, the spread of toxic chemicals and fire outbreaks."

Singapore bunker supplier goes electric

Singapore-based bunker supplier Victory Pte Ltd is converting its fleet, comprising of six bunker barges, to utilise a hybrid electric propulsion system. This follows an MOU signed last year with BH Global Corporation's subsidiary Sea Forrest Power Solutions (SFP).

SFP will convert Victory's existing bunker fleet and design and supply Energy Storage Systems (ESS) and ship-to-ship charging systems to Victory.

According to Victory, the hybrid-electric bunker tankers will be designed with high fuel efficiency to lower carbon emissions. SFP will also develop a proprietary-design one-stop ship-to-ship charging system with minimal footprint for the powering of plug-in hybrid and full electric vessel. The ESS developed will be specially designed and engineered for coastal usage.

Victory Director Ong Zhenzhi says: "This strategic partnership enables us to continuously build and enhance sustainable solutions for our ship-to-ship charging station, as we bring our different expertise to the table. By being an early adopter, we hope to provide assurance to the harbour craft community as they transit to greener energy."

She adds: "This will be a step-by-step process, meaning that we are initially changing the propulsion system to be 'fully electric ready'. The barges could subsequently be converted into fully battery-powered operation in the future, once battery technology is more mature."

Ong explains: "We are looking to convert the barges into a hybrid model to start with, installing 100KW battery packs that could potentially increase up to 1MW in the future. These vessels would also come with a 'super charger' to supply electric power to other harbour craft. This is in line with MPA's decarbonisation vision for all harbour craft to operate on full-electric propulsion or net zero fuels from 2050.



Ong Zhenzhi, director of Singapore bunker supplier Victory



Furetank has committed to using biogas

LBG SUPPLY DEAL

Swedish product tanker owner commits to buy biogas from municipal waste

Liquefied biogas (LBG) is one of the keys to fossil-free shipping, at least according to Furetank, but the Swedish family-owned product tanker company says lack of supply is a major issue.

To overcome this problem the company has signed a letter of intent with Eskilstuna Biogas, enabling the development of a new biogas plant producing around 5,000 tonnes of LBG annually.

Furetank has committed to buying at least 75% of the produced fuel for 10 years. The gas will be extracted from manure and food waste from the Swedish municipalities of Eskilstuna and Strängnäs. Furetank says that the extracted gas “is upgraded to a 100% waste-based, fossil-free and renewable biofuel, LBG”.

The company's nine-strong fleet currently operates mainly on LNG, but it says that its ambition from the start has been to switch over to LBG as soon as possible.

The biogas plant will be the largest environmental investment in Eskilstuna in 20 years and corresponds to almost 10% of the municipality's total greenhouse gas emissions, according to Kaj Wägdahl, Chairman of the Board at Eskilstuna Biogas AB.

The project receives approximately SEK 140 million (US\$14 million) in grants from the Swedish Environmental Protection Agency's support for climate investments. An agreement with a large customer was a requirement for obtaining financing.

Production is planned to start in the last quarter of 2023. Furetank notes that the project is well-timed given the impending launch of the EU Emissions Trading System (ETS) for shipping. It asserts: “When all shipping companies need to start paying for their carbon dioxide emissions, Furetank will be one step ahead.”

Furetank CEO Lars Höglund says: “We became the first shipping company in Sweden and second in the world to bunker LBG in 2018. For us it was a statement; we want to head in this direction. Now we have a clear plan for the transition and are negotiating more contracts in Sweden and other European locations. It feels incredibly good. The whole organisation enjoys being involved in pushing this development forward and showing that it is possible.”

Bio-VLSFO deliveries in Singapore

TotalEnergies Marine Fuels says it has carried out its first marine bio-VLSFO bunker delivery in Singapore's port waters, as part of a biofuel trial recently completed by NYK Line and Anglo American.

During the operation, a B10 biofuel blend composed of VLSFO blended with 10% second-generation, waste-based and ISCC-certified UCOME (Used Cooking Oil Methyl Ester) was supplied via ship-to-ship transfer



to MT Friendship, a bulk carrier owned by Seenergy Maritime Holdings Corp and chartered by NYK Line to transport cargo provided by Anglo American. The biofuel was consumed during her two-way voyage between Singapore and Saldanha Bay, South Africa.

TotalEnergies claims: "The UCOME bio-component, sourced from the 'circular economy', can achieve more than 80% reduction of GHG (Greenhouse Gas) emissions compared with heavy fuel oil from a well-to-wake analysis. Consequently, the delivered B10 biofuel blend provides a reduction of up to 10% in GHG emissions. The trial also showed that the biofuel can be safely used in relevant marine applications without any modifications. These results, coupled with the vessel's

smooth operational performance throughout the trial, demonstrate the potential of biofuels in assisting shipowners to meet the International Maritime Organization's carbon emissions reduction targets."

In a separate development V-Bunkers, Vitol's Singapore bunker operations company, says that its barges have recently made several deliveries of bio-fuel blended VLSFO.

Mike Muller, Head of Vitol Asia said: "We are delighted to have demonstrated in multiple deliveries that we have the capability to bring to market these bespoke blended bunker supplies containing renewable energy. We appreciate the support of the Maritime and Port Authority of Singapore (MPA) in facilitating these

initial, trial deliveries. Bio-fuel bunker blends represent an 'available-right-now' decarbonisation option for shipowners and we are committed to making these blends more readily accessible to our shipping customers."

Quah Ley Hoon, Chief Executive of MPA said, "We are pleased to facilitate Vitol's successful delivery of their first bio-fuel blended VLSFO to Singapore. As the world's top bunkering port, we will continue to work with industry partners like Vitol to promote and provide the industry with greener marine fuels options in our drive towards more sustainable shipping."



TotalEnergies Marine Fuels first marine bio-VLSFO bunker delivery in Singapore. © TotalEnergies



Artists impression of Azane Fuel Solutions bunkering barge in operation

GREEN AMMONIA PILOT

Yara set to create green ammonia bunkering network starting in Norway

Yara International and Azane Fuel Solutions have signed a commercial agreement to establish a carbon-free ammonia fuel bunker network in Scandinavia. The ammonia bunker terminals will be designed and constructed by Azane Fuel Solutions and delivered to Yara.

Azane is a technology company that specialises in providing solutions for small-scale ammonia bunkering.

As one of the world's largest ammonia producers, the global fertilizer company Yara says it will use its position to deliver green ammonia to the shipping industry.

Magnus Krogh Ankarstrand, President of Yara Clean Ammonia says: "These bunkering terminals are key pieces of the puzzle to ensure reliable and safe ammonia supply as zero-emission fuel. Yara is excited to be a part of the project and to own and operate the first operational ammonia fuel terminals in the world."

Last year Azane's shareholders, Amon Maritime and ECONNECT Energy received public funds from Norway's Green Initiative program to develop and develop the first pilot unit. They will finance the pilot terminal together with grants from Innovation Norway and the Norwegian Research Council. Subsequently, Yara has pre-ordered 15 units to sufficiently cover the Scandinavian market in a multi-year contract with Azane Fuel Solutions.

Yara's bunker terminals will be either barge-based or land-based. Both terminal designs have storage tanks and processing capacity for the safe storage, handling, and transfer of ammonia. It is intended that the network will eventually extend worldwide.

"For those of us who build ships that will run on green ammonia, this agreement means that we can be sure that the fuel is available for delivery when the first vessels are ready," says André Risholm, CEO at Amon Maritime, Board member of Viridis Bulk Carriers and Chairman of Azane Fuel Solutions.

Recent developments

PIL orders ammonia-ready boxships

Singapore-based Pacific International Lines (PIL) has ordered X-DF2.0 engines from Swiss engine designer WinGD LNG for a series of dual-fuel, ammonia-ready vessels.

Four 14,000 TEU container ships being built at the Jiangnan shipyard in China, will have WinGD X92DF-2.0 dual-fuel engines capable of operating on both gas and liquid fuels.

The engines will be fitted with WinGD's GHG emission reducing technology iCER (Intelligent Control by Exhaust Recycling) which delivers enhanced combustion control. This creates an energy consumption reduction of 3% in gas mode, and fuel consumption savings of up to 5% in diesel mode, while reducing methane slip by as much as 50% in gas mode.

EU ammonia project

Technology company Wärtsilä says that it is coordinating an EU-funded project to accelerate ammonia engine development.



A consortium of shipping stakeholders intends to develop demonstrators for two-stroke and four-stroke marine engines running on ammonia fuel. The Ammonia 2-4 project aims to advance viable concepts for ammonia fuel.

In addition to Wärtsilä, naval architects C-Job, classification society DNV, ship owner MSC and the National Research Council (CNR) of Italy are involved. The project has secured funding of €10 million from the European Union through the Horizon Europe research funding initiative.

"Ammonia is one of main candidates in shipping's search for future fuels," asserts Sebastiaan Bleuanus, General Manager, Research Coordination & Funding, Wärtsilä Marine Power. "Wärtsilä has already proven an engine concept running on blends of up to 70% ammonia so far and will have a concept running on pure ammonia by 2023."

The outcomes of the project are planned to include a lab-based demonstrator for the four-stroke ammonia engine, and a lab-based test engine followed by a vessel retrofit for the two-stroke version by 2025. In addition to advancing the engine concepts, the Ammonia 2-4 project is expected to further develop concepts around fuel handling and safety as well as contributing inputs towards a regulatory framework for ammonia.

'Zero-emission' VLCCs

Lloyd's Register, Samsung Heavy Industries (SHI) and MISC subsidiary AET, have signed an MOU for the development and construction of two VLCCs that can be operated on 'zero-emission' fuel.

The three companies, all founding members of the Castor Initiative, say they are taking the lead to encourage the use of green ammonia as propulsion fuel, with the first of these dual-fuel tankers entering into service in late 2025 and the second in early 2026.

The Castor Initiative, a multinational coalition committed to make zero emission in shipping a reality, includes MISC Berhad (MISC), Lloyd's Register, Samsung Heavy Industries, MAN Energy Solutions, the Maritime and Port Authority of Singapore, Yara International ASA and Jurong Port.

Following the inking of this MOU, The Castor Initiative members will focus on identifying green shipping corridors to facilitate the bunkering of these vessels.

Specialist ship management for ammonia powered ships

Bernhard Schulte Shipmanagement and Norwegian ammonia specialist Amon Maritime have announced the creation of a 50/50 joint venture Ula Ship Management. Based in Norway, it intends to offer ship management services for the Norwegian market, specialising in ammonia-powered vessels, but open to all types of ships.

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PureteQ

THE SCRUBBER MAKER

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Servicing hundreds of scrubber systems of almost all brands, we have gained extensive knowledge of most scrubber systems. PureteQ offers service agreements without binding and without pre-payment. You only pay for the services that you need and this at a fair price. As an integral part of this agreement, we offer a 24/7 service desk manned by professional marine engineers, who have undergone a comprehensive training in all components of a scrubber system, including sensors. The Service Agreement is an umbrella agreement that has several options tailored to match your needs. In other words, we offer you an unparalleled "one-stop-shopping center for scrubbers and associated equipment".

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Evergreens 24,000 TEU A Class will be fitted with Alfa Laval scrubbers. ©Evergreen

GETTING BETTER

Scrubbers have been in service for several years now but the technology is being continually improved. We look at some recent developments

Efficient water cleaning for big box ships

Prohibition of scrubber water discharge in some ports has led to continued development of hybrid systems. Currently the world's largest container ship, the 24,000 TEU Ever Ace has two Alfa Laval PureSOx scrubbers with a shared water cleaning system (WCS).

Delivered last July, the Ever Ace is the first of 12 vessels planned for Evergreen's record-breaking A Class. She is powered by a main engine of nearly 60 MW and also has five auxiliary engines of 4.5 MW each.

To clean the engines' exhaust gas, the Ever Ace has two PureSOx scrubbers on board – one for the main engine and one for the auxiliaries. As hybrid scrubbers that can operate in open or closed loop, they require effective cleaning of the closed-loop circulation water. This is provided by a shared WCS based primarily on high-speed centrifugal separation.

Alfa Laval says that its WCS design has recently been updated, providing additional modular options to ensure a compact and cost-effective fit. On vessels with high engine power, such as mega-container vessels, it allows for greater capacity by adding flocculation to the centrifugal separation at its heart.

This is the case on the Ever Ace, where the WCS incorporates three high-speed separators, flocculator modules and a feed pump. According to the manufacturer, although it serves two PureSOx scrubbers with a combined exhaust gas cleaning capacity of almost 200 t/h, the WCS has a minimal footprint in relation to its high efficiency.

Modular approach

Technology group Wärtsilä is to install its exhaust gas cleaning systems on two newbuild 218 metre Ro-Pax ships at China's Guangzhou Shipyard International.

The contract, which was signed in February 2022, will see Wärtsilä fit and commission

two 25 megawatt V-SOx hybrid scrubber systems, which can run in both open and closed loop configurations, on each vessel.

Wärtsilä claims the modular system will be "future-proofed" against impending regulatory change because it can be upgraded to tackle other pollutants, including NOx, PM and CO₂.

Wang Bin, Area Sales Manager at Wärtsilä Exhaust Treatment in China, said: "Our technology completely fulfils technical requirements for newbuilds, ensures compliance with current regulation, and is also the first building block for future sustainability innovation."

Weatherproof installation

Scrubber manufacturer PureteQ has released what it says is the first U-type scrubber system that is weatherproof for outside installation adjacent to an existing casing/funnel. The scrubber is based on the open tower energy efficient design of an inline scrubber, and it comes with the same control system. This design enables variable regulation of seawater flow to match the engine design load from 10% load to 100%, which in turn provides for the "most energy efficient and seamless operation in the business".

PureteQ says it has also developed a packed bed U-type scrubber for very large vessels up to 100MW input, which is now being offered to the market. The optional water treatment system for all scrubbers is based on ceramic filtration to meet and surpass the legal requirements and it can even be containerised, depending on customer's requirements.



A worker doing the final cleaning of a Wärtsilä scrubber before delivery to Guangzhou Shipyard International (GSI)

NEW PRODUCTS FOR EEXI COMPLIANCE

Range of new solutions on offer to meet IMO efficiency requirements

From January 2023, the revised MARPOL Annex VI will enter into force and all existing ships of 400 GT and above must comply with the IMO's new Energy Efficiency Existing ship Index (EEXI) and Carbon Intensity Index (CII) regulations.

ABB's digital suite

Among a number of new products aimed at ship operators needing to meet the new regulations, ABB Turbocharging has launched what it describes as a "digital suite to help ships cut fuel consumption by up to 20%".

The company says its Ability Tekomar XPERT is a digital suite delivering powerful insights into vessel performance, as well as CO₂ emissions monitoring and reporting. It estimates that "deeper insights into a vessel's operational data" could provide up to 20% fuel reduction, cutting costs and emissions as a result.

Tekomar XPERT marine comprises three modules covering the engine, hull and propeller, and emissions. Combined, according to ABB, "these modules provide actionable insights into ship performance, based on which shipping companies can make better operating decisions, which lead to notable fuel savings". Using the modules is said to enable vessels to achieve improved carbon intensity index (CII) ratings and make charter party conformity emissions reporting easier.

The engine module is already in use to optimise the performance of more than 8,000 engines in operation. The hull and propeller and the emissions modules have now been launched to further extend the solution's capabilities.

The emissions module enables the CII rating and CO₂ emissions to be accurately forecasted, allowing for pre-validated emissions reporting in line with the International Maritime Organization's (IMO) and the EU's Monitoring, Reporting & Verification (MRV) requirements. The module has an easy to use, automated

reporting function based on electronic logbook data. The actual CII ranking and its simulation is based on the key operating parameters of the vessel, as well as historic data.

The hull and propeller module is designed to provide insights into the vessel's performance in real time. This includes an accurate assessment of de-fouling requirements, which can have a significant positive impact on a vessel's performance. ABB comments that fouling can lead to an overconsumption of fuel of up to 20%. With this level of insights, effective planning of improvement actions is greatly simplified.

ClassNK's CO₂ emissions tracker

ClassNK has released its ClassNK ZETA (Zero Emission Transition Accelerator) product, a GHG emissions management tool to track accurate CO₂ emissions and confirm and simulate CII ratings.

While the shift toward a zero-emission society has accelerated around the world, the time has come for the maritime industry to systematically plan, manage, and report the GHG emissions from shipping.

ClassNK says its emissions management tool has been developed to visualise CO₂ emissions from ships and is linked to ClassNK MRV Portal which supports compliance with IMO and EU

requirements for monitoring, reporting and verifying ship fuel consumption.

The classification society says that, in addition to ship management companies and other data holders, ClassNK ZETA is also available to shipowners and charterers, subject to data usage permission by the data holders. It adds: "In the future, ClassNK will expand its functions to be used by various stakeholders involved in maritime transportation, such as cargo owners and financial institutions, and will also work to enhance its functions in collaboration with external partners."

Chris-Marine's shaft power limiter

Swiss-based Chris-Marine has launched a new product to enable ship owners to limit the maximum shaft power output of their vessels, without having to modify any of their existing machinery, and to meet the now tight implementation time frame of the EEXI requirements

The ShaPoLi solution includes hardware and software intended to enable ship operators to comply with the EEXI. It can also be used to monitor and optimise Carbon Intensity Indicator (CII) ratings in the future.

It will allow real-time logging of power and speed data. It also includes an override function accessed through a command panel installed on the bridge, in case of emergencies.



GETTING READY FOR EEXI

HFW assists in drafting charter party clauses as new deadline looms

Global law firm HFW says it has helped BIMCO draft a series of clauses in response to strict new environmental legislation that will seek to reduce the industry's carbon emissions and which will change the way ships are operated in the future.

From 1 January 2023, new regulations to implement the International Maritime Organization's initial greenhouse gas strategy will start to take effect, with the aim of reducing carbon emissions from ships by 40% from 2008 levels by 2030. This will involve ships meeting increased technical measures to improve a ship's energy efficiency (EEXI), and ongoing operational measures to reduce a ship's carbon intensity in accordance with a carbon intensity indicator (CII) regime.

HFW also notes that the EU is seeking to include shipping in its existing Emissions Trading System (ETS) from 2023.

The law firm says that, in preparation for these significant regulatory changes, BIMCO is putting together a series of what it describes as "game-changing" carbon emissions clauses for time charter parties, which seek to address the relationship between shipowners and charterers in the context of compliance with the new carbon emission regulations.

The first, BIMCO's EEXI Transition Clause 2021, was published and is ready for insertion into time charter parties (<https://www.bimco.org/contracts-and-clauses/bimc>). The clause allocates the risk and responsibility between the parties where technical modifications are required, in particular where the power output of a ship's engine is limited.

The BIMCO sub-committee tasked with drafting the series of carbon emission clauses is made up of representatives from BIMCO, owners, charterers, P&I clubs, and technical and legal experts. HFW says

that it is the only UK-based law firm on the sub-committee, and is represented by Alessio Sbraga.

HFW is also helping BIMCO draft a new EU ETS clause and a time charter clause dealing with the CII regime, which will both be published in the coming months.

With less than a year to go in order to ensure that their vessels comply with the EEXI regulations, HFW stresses the need for shipowners to plan for the change. The firm advises: "It is paramount that owners take steps to properly understand and ascertain the modifications which need to be carried out to the vessel in order to comply with the EEXI regulations. This requires a thorough discussion with all stakeholders, including engine makers and classification societies."

Noting that "collaboration is key" it continues: "When negotiating new long-term time charter parties, parties need to have a discussion to prepare for the vessel's upcoming EEXI modifications, if any. Compliance with the EEXI regulations will, at the end of the day, benefit all parties who are trading the vessel. Owners and charterers cooperated and collaborated to implement the MARPOL 2020 sulphur regulations. They will need to continue such cooperation to comply with the EEXI requirements."

HFW also stresses the need to "verify the figures". The firm says: "Once the modifications are completed, owners should carry out the necessary trials and calculations prior to updating the vessel's performance warranties in the charter party and this will require proper coordination internally between the shipowner's commercial and technical management."

Wan Hai pays for not cutting use of auxiliary machinery

The US's California Air Resources Board (CARB) says it has reached a settlement

agreement with Wan Hai Lines (USA) Ltd for \$680,750 for violations of its Ocean-Going Vessels At-Berth Regulation that aims to reduce diesel particulate matter and oxides of nitrogen from ocean-going vessels auxiliary engines while they are docked at California ports.

The violations were found during a routine audit by CARB's Enforcement Division of fleets visiting California ports in 2020. According to CARB The audit revealed that Wan Hai failed to reduce its fleet auxiliary engine power generation by at least 80% while docked at the ports of Los Angeles and Long Beach and failed to meet the three-hour operational time limit for at least 80% of its fleet's visits. The operational time limit caps the number of hours a vessel may run their engines while in port to a maximum of three hours.



©IMO



A visit from His Royal Highness Crown Prince Frederik and the Danish Minister for Climate, Energy and Utilities (Dan Jørgensen) and the Mayor of Odense (Peter Rahbæk Juel)

PURETEQ – SERVICE AGREEMENTS WITHOUT PREPAYMENT FOR EGC SYSTEMS OF ANY BRAND

PureteQ – THE SCRUBBER MAKER

PureteQ designs, delivers and commissions built-to-fit maritime scrubber systems for shipowners who want to save money on fuel by continuing use of heavy fuel oil. The price span between compliant fuel and HFO have increased to almost historic levels, and interest for new scrubber systems is increasing with the larger price span.

All PureteQ scrubbers comes with state-of-the-art intuitive control systems including full real time remote accessibility. This feature allows for detailed trouble shooting assistance to crews without physical attendance.

The technology allows us to regulate waterflow to the scrubber from 10% to 100% of the design capacity, as supposed to other brands that will only allow for minor regulating of waterflow. The result is

superior energy performance and saving of fuel.

Service agreements for scrubber systems of any brand

At present PureteQ service most brands of scrubbers including our own PureteQ Scrubber System. We do this in all parts of the world pending local COVID and/or travel restrictions. PureteQ has offices in Europe, and in Asia and from there, our trained marine engineers are dispatched from nearest location to provide service. Often, we are already working on ships in the various ports around the world i.e., US and South America, hence some travel cost may be saved. We are certified in most sensors and can calibrate and issue certificates for compliance sensors including CEMS systems when attending the vessels once per year. Depending on instrument air quality for CEMS systems,

the cell will have to be refurbished at intervals. PureteQ offers practical solutions to prolong the life of the cell and increase service intervals.

PureteQ offer service agreements without bindings and without prepayment. You only pay for the services that you need and this at a fair price. As an integral part of this agreement, we offer a 24/7 service Desk manned by professional marine engineers, who have undergone a comprehensive training in all components of a scrubber systems to include sensors. In other words, we offer you an unparalleled “one-stop-shopping center for scrubbers and associated equipment”

We conduct numerous training sessions for onshore personnel as well as for crews and officers. We have established a modular training program to fit the individual



shipowners need. The modular training program remains very popular amongst crews, officers, and onshore personnel. The training is done virtual or if needed with on-board presence as part of the annual service visit. All training modules offer share-point-based questionnaires and tutorials to ease the understanding of the training and when the exams have been passed Training Certificates are automatically issued by PureteQ.

All of this and much more are in safe hands by entering the PureteQ / PureServ service agreement. We have the tools, the manpower and the skillset to make a difference. Furthermore, we supply some of the most advanced and easy to use software in the business. We can even replace software (including some hardware) on other brand scrubbers if needed.

We are also offering clients cloud-based software for environmental performance reporting and optimization of scrubbers across the fleet. It features the measuring of MARPOL compliance, operational performance (impact on SFOC) as well as environmental performance reporting, such as CO₂, Sulfur and later PM reductions. The software is a perfect match to new IMO regulation on EED(X)I & CCI, when well to wake principle applies. This software will allow for across ship / fleet learnings to crews, hence reduce cost and we see crews competing on operation of the scrubbers.

The Service Agreement is an umbrella agreement, that has several options tailored to match individual needs. Shipowners may at any time add or exclude the options and include or exclude ships from the agreement – all it takes is an e-mail describing the changes who shortly after receipt will be confirmed and executed.

PureteQ PureServ is privileged to quote service agreements for scrubber systems of any brand.

Combined Carbon Capture and production of hydrogen

In 2018, ESTECH - part of the PureteQ Group - began a research program into Carbon Capture Technology, and we are pleased to announce that we have recently been granted patents on a technology that combines Carbon Capture from exhaust gas with Power-to-X in US as well as in Europe. The solution is a unique combination of Carbon Capture and parallel production of hydrogen.

Tests carried out at our pilot plant at a Danish wastewater treatment plant indicates that approximately 80 % of the green energy utilized for Carbon Capture is stored in hydrogen. The CO₂ as well as the Hydrogen are building blocks for fuels and other products. The technology has the potential to become the most energy-efficient CCS technology on the market for small and medium-sized industries and even for some of the bigger companies.

The technology is based on the PureteQ's exhaust gas purification technology with patented hydrodynamic fluid distribution as well as on the existing and well proven digital platform for other in-house technologies. The hydrodynamic fluid distribution ensures optimal conditions for the gas/fluid reaction, resulting in a smaller reaction chamber/scrubber.

The Group has been able to accelerate the product development process and we have begun the task of scaling the technology by more than 100 times existing capacity. When this work is well underway, we intend to build the first commercial plant.

The first full sized commercial CCCH₂ plant is expected in 2023/2024.

In 2023 we intend to investigate feasibility of on-board CCS based on standard amine processes.

Contact info:
Anders Skibdal, CEO
+ 45 4017 1400
anders@pureteq.com

Michael Mouritzen, Sales
+45 4014 4481
mim@pureteq.com





NACALA

NEW BUNKERING HUB IN THE MOZAMBIQUE CHANNEL

New player CPG launches bunkering service to serve vessels trading and transiting the East African area

CPG, licensed for Bunkering in Mozambique as Civitas Logistics Lda, subsidiary of CPG Operations DMCC ("CPG"), in the 4Q of 2021 launched a new bunkering service based out of the port of Nacala, Mozambique. The company has been operating in fuel logistics in Mozambique since 2018.

After landing Mozambique's first cargo of very low sulphur fuel oil (VLSFO – max 0.5% sulphur) in November, CPG has seen strong demand for the new service - delivering bunkers to over 100 vessels.

Anchored by the company's Floating Storage Unit (FSU) with capacity of 110,000 DWT and segregations for all three major grades, low sulphur marine gasoil (LSMGO), VLSFO and high sulphur fuel oil (HSFO), CPG is able to offer efficient delivery by barge at berth (general cargo and fuel terminals) and at anchorage. The FSU allows the company to land products at affordable levels and offer stems at rates comparable with other regional bunkering hubs, including Port Louis and Algoa Bay.

CPG is operating three delivery barges based in the Port of Nacala and is able to offer consistent availability for charterers and owners operating on strict schedules.

Strategic Location

The Port of Nacala, home to the largest coal terminal in Mozambique, sits in a strategic location in the Mozambique channel, representing only a small deviation for vessels transiting the channel.

Nacala's natural deep water anchorages allow for vessels of all sizes to call for bunkers without any draft restriction.

Bunker Only Calls

Working with the authorities in the port of Nacala, CPG has implemented a regime for

bunker only calls at an affordable lump-sum calling cost at Nacala outer anchorage. Operations are proceeding on a 24hr basis, minimising waiting times for bunker only operations.

Please Contact:

Pedro Fonseca, Civitas Logistics Limitada / CPG Operations DMCC
 Whatsapp + 258 84 6995975
 Email: cpgbunkering@civitas-partners.com
www.cpgbunkering.com



Nacala is the only affordable option for bunker only calls between Fujairah and Algoa Bay for vessels on the cape-north route.



DISCOVER OUR CAPABILITIES AND NETWORK



Leading bunker supplier in the Indian subcontinent

Axiom Global is an energy trading & bunkering company headquartered at Dubai, United Arab Emirates. The personnel at the helm at Axiom Global have over two decades of experience in energy trading, risk management and bunkering especially in the Indian subcontinent, Southeast Asia, Middle East and Africa region. Recently they started commencing bunkering operations in UAE Ports of Dubai (Mina Al Rashid, Jebel Ali), Sharjah (Hamriyah, Khorfakkan), Abu Dhabi (Mina Zayed), etc.

Axiom Global is built with a mission to offer and build a sustainable and profitable relationship with their stakeholders and trading partners in the field of energy trading, bunkering and risk management. As bunkering industry is under constant pressure due to its very nature, Axiom Global, strives to "deliver more for less" by offering customized solutions for specific markets with a motto of "Our Word is Our Bond".

Axiom Global strives to offer best and competitive trading experience to their trading partners by controlling the entire supply chain from procurement, storage, blending, shipping, and hedging and simultaneously keeping social responsibility and environment at its core at all stages of the supply chain.

The strength of Axiom Global lies in its team. They believe in "happy employees, even happier customers". Axiom Global believes and practices the philosophy that an engaged team helps in establishing better relationships with customers, suppliers and other channel partners and stakeholders.

Axiom Global offers bunker fuels that meet the unique needs of their customers at affordable rates through multiple distribution points (in-port and out-of-port limits) in all major and minor ports in India, Sri Lanka and Iraq.

Axiom Global promises to provide services through its progressive and innovative approach to delivering energy. They offer a broad range of marine fuels which comply with international standards like ISO,

MARPOL as well as localized requirements to meet customer satisfaction.

Based on this principle "our word is our bond", Axiom Global's team, over a period of time have developed a satisfied clientele of ship owners, oil majors, government shipping companies, OMC's, bunker buyers and bunker traders who look upon us for meeting their bunker requirements for their ships calling in Indian sub-continent, Middle East and other ports like Egypt, Singapore, etc.

Axiom Global has working offices in Dubai, Singapore and India and soon will be establishing an office in London to increase and closeness with our customers and stakeholders.

www.axiomglobaltrading.com





TANGER MED A WORLD CLASS PORT COMPLEX

A focal point of global logistic flows on the major East-West / North-South maritime routes and a crossing point for 20% of global trade

During 2021 new records were achieved in the Mediterranean with more than 7 million TEUs

CONTAINER TRAFFIC: OVER 7 MILLION TEUs

7,173,870 TEUs (Twenty-Foot Equivalent Unit) containers were handled in Tanger Med port complex, up by 24% compared to 2020. This traffic results from the steady ramp-up of Tanger Med 2 port after the successive commissioning of the terminals TC4 in 2019 and TC3 in 2021. This result confirms the leadership of Tanger Med in the Mediterranean and Africa, and consolidates the position of this major hub for global maritime alliances led respectively by Maersk Line, CMA CGM and Hapag Lloyd.

OVERALL TONNAGE ACHIEVED: A RECORD OF 101 MILLION TONS OF GOODS HANDLED

101,054,713 tons of goods were handled for the first time in Tanger Med port complex, up by 25% compared to 2020. Indeed, the tonnage handled by Tanger Med port complex represents more than 50% of the overall tonnage handled by all Moroccan ports.

RO-RO TRAFFIC: 400,000 MARK HAS BEEN TOPPED

The port complex handled 407,459 trucks in 2021, up by 14% compared to 2020. This traffic was mainly driven by the resumption of industrial exports as well as by the good performance of the agricultural season and agro-industrial exports.

NEW VEHICLE TRAFFIC: A NOTABLE TWIST

429,509 new vehicles were handled at the two vehicle terminals of Tanger Med port in 2021, an increase of 20% compared to the previous year. The traffic mainly includes:

- 278,651 Renault vehicles including 250,532 for export
- A rise in exports of PSA vehicles: 100,030 cars exported

INCREASED LIQUID BULK TRAFFIC

Liquid bulk traffic has increased by 9% compared to 2020. It recorded a total traffic of 8,744,900 tons of hydrocarbons handled.

GROWING SOLID BULK TRAFFIC

Solid bulk traffic recorded a total of 342,804 tons processed, an increase of 13%

compared to 2020 driven by the traffic of steel coils, wind blades and grain.

PASSENGER TRAFFIC STILL AFFECTED BY THE HEALTH-RELATED CONTEXT

587,320 passengers crossed Tanger Med Port in 2021, down by 14% from 2020.

GROWING MARITIME TRAFFIC

10,902 vessels called at Tanger Med in 2021, up by 12% from 2020. Over the past year, the port complex has welcomed nearly 929 mega-ships (over 290 meters in size).

These performances accomplished during 2021 affirm the position of the port complex as a major strategic hub but also its key role as a privileged logistics platform serving the national logistic competitiveness.

The achievements are the result of the continued collaboration of all the partners of Tanger Med port complex.

www.tangermedport.com





©E.Houri

TAKING A MULTI-LAYERED APPROACH TO ENGINE CLEANLINESS

Preventing deposit build-up in ship engines has become the main challenge ship for operators since the majority of the global shipping fleet switched to low-sulphur fuels in 2020

The International Maritime Organisation's (IMO) 0.5pc sulphur cap ushered in a range of 0.5pc sulphur fuel oil blends with varying viscosity, density, pour point and concentration of catalytic fines. Choosing a compatible lubricant that compensates for these varying fuel characteristics is now essential to avoid engine fouling and costly repairs.

OEM guidelines recommend careful engine monitoring and a sophisticated intelligence-led approach allowing for the most efficient management of two stroke marine engines.

Using the right lubricant in the right amount to deliver optimum performance is just one piece in the puzzle.

Rising to the challenge requires an understanding of the multiple operating parameters of the engine, combined with smart engine monitoring and drain oil analysis and interpretation - something that can only be achieved with the support of a lubricant specialist in order to ensure an effective engine cleanliness.

3 Key Steps to LOFR (Lube Oil Feed Rate) Optimization in the Post IMO2020 Landscape

Step 1 – A Proven Lubricant Solution

Talusia Universal is a fully OEM approved cylinder oil with a patented chemistry, proven with over 125,000,000 successful operating hours.

Tests show that Talusia Universal performs better than conventional BN 40 in cleaning ability (detergency) and provides higher residual BN, and therefore safety margin, enabling you to optimize the feed rate and maintain the iron content into the limits determined by the OEM's during long-term operation.

Step 2 – Implement a Robust Analysis Programme

Implementing an effective Drain Oil Analysis Programme is simple, reliable and a proven way of helping optimize operations through lubricant consumption and component wear analysis.

Drain Oil analysis programmes can offer differing levels of insight ranging from regular services providing a snapshot, focusing on OEM conformity in regard to iron and residual BN levels, through to more advanced programmes delivering comprehensive engine analysis reporting. These advanced programmes provide insights on system oil contamination and finally optimum analysis services looking at detailed mid-to-long term performance measurements including specific LOFR optimization advice and insight.

Step 3 – Marine Expertise – The Human Element

The third layer in achieving optimum engine performance including its cleanliness profile is to enlist the support of highly experienced engineers to assist with lubrication optimization and any lubrication issues vessel operators might be experiencing.

This can include:

- Ship engine inspections and trouble-shooting
- Lubrication survey and technical investigations
- Shipyard and switchover support
- Vessel machinery assessment and long-term follow up

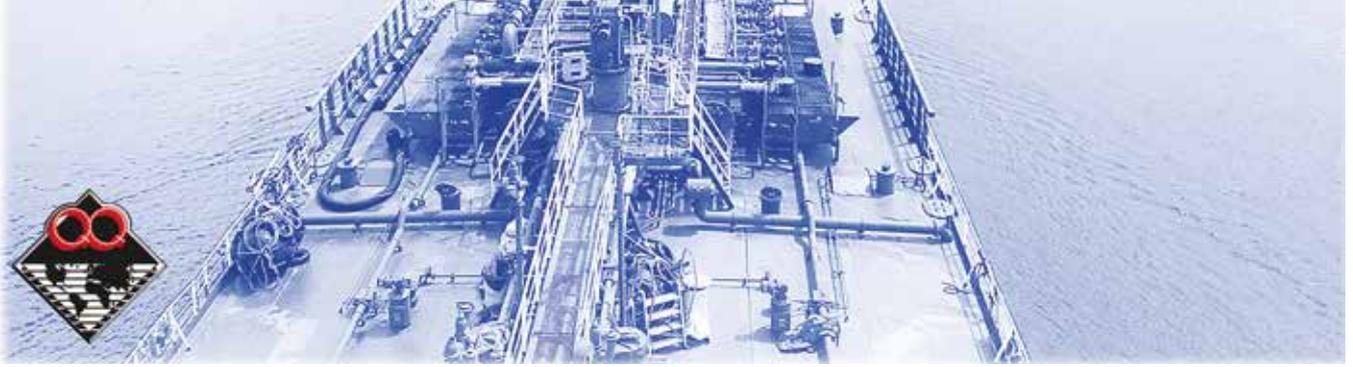
This third step enables supporting decisions to be made on the best courses of action specific to a vessel.

A recently launched white paper from Lubmarine called 'Adapting to Life in The Post IMO2020 Landscape', provides industry with guidance and the benefits of a multi-layered approach to achieving engine cleanliness and optimizing LOFR. To read more, go to <https://bit.ly/3KQVKNR>.

By carefully and regularly monitoring lubricant and vessel machinery condition, ship owners together with their oil supplier can proactively detect and react to any abnormalities and contamination issues through a range of tailored solutions designed to help deliver multiple benefits.

Scan the QR code to read more, or go to <https://bit.ly/3KQVKNR>.





Q & Q CONTROL SERVICES

MAJOR PROVIDER OF CARGO INSPECTION, SUPERINTENDENCE, AND TESTING SERVICES SINCE 1991

Q & Q Control Services offers a full range of services to cover various cargoes from oils and chemicals through to agricultural products, dry goods and beyond. Our broad scope of experience gained over thirty years includes international standard commercial surveys, integrity & validation surveys as well as damage and condition surveys. We employ local staff in our offices throughout West African countries from Togo right through to the Democratic Republic of Congo.

West African bunker survey teams take care of spot surveys, quality and/or quantity,

on-hire or off-hire, redelivery and other standard and bespoke surveys. All bunker fuel quality certificates are issued in accordance with ISO8217 specifications for Marine Fuels for the grade(s) nominated for analysis. Whether appointed directly or via your local representative shipping agent, our expert local teams are instructed to look after the needs of the client.

Q & Q Control Services can attend and operate:

- onshore and offshore
- floating storage or storage tanks

- bunker storage checks or blending
- bunker supply vessels
- receiving container ships
- VLCCs, Panamax
- coasters, fishing vessels etc.

Whatever you need, Q & Q Control Services supplies the expertise available to assist.

Q & Q Control Services
ops@qqcontrol.com
HQ: +44 1284 729071
Visit: qqcontrol.com

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



QUALITY AND SERVICE

from Oil Marketing & Trading International D.M.C.C. (O.M.T.I.)

Fujairah Engineering Company LLC (FECO), which was established in 2004 in Oman and has since been operating the ex BP Bunkering facility of 110,000 cubic meters storage capacity, has reached an agreement with Salalah Port Services Company SAOG (SPS) to operate the now called FECO bunkering facility. Under this agreement, FECO has been licenced to supply bunkers at Salalah Port.

M/T Sea Dweller will be stationed at Salalah Port to perform bunker deliveries. With a 400MT per hour pumping capability, and 3,420 DWT, the 2002 built tanker will initially supply Low Sulphur (0.1%) Marine Gasoil ISO 8217 with plans to introduce Very Low Sulphur Fuel Oil (VLSFO) ISO 8217 within a month. In addition to deliveries by barge, FECO has the ability to deliver Marine Gas Oil via road tankers at certain Salalah Port berths.

Marketing of the products will be done exclusively by Oil Marketing & Trading International D.M.C.C. (O.M.T.I.) and all customers' enquiries will be handled by Mr Dimitri Martinuzzi available at the following contact details:

bunkers@oil-marketing.com
oman@oil-marketing.com

Tel: +971 4 4350500
Mob: +971 50 433 0507

The quality of the service and the products supplied will be equivalent to OMTI standards ensuring efficiency and reliability to owners, charterers and operators of all types and sizes of vessels.



6-10 JUNE 2022

POSIDONIA 2022, ATHENS, GREECE POSIDONIA EXHIBITIONS SA

Posidonia Exhibitions SA is a leading organiser of trade fairs in Greece, and operates through its headquarters located in Piraeus, Greece. Posidonia Exhibitions SA has specialised in trade fairs regarding the international shipping and sea tourism industries. The company is the organiser of Posidonia, the international shipping exhibition, the Posidonia Maritime Policy Forum, a one-day conference addressing issues of importance to the international shipping community, and the Posidonia Sea Tourism Forum, an international conference and exhibition about sea tourism.

For more information: <https://posidonia-events.com/>

22 JUNE 2022

IBIA : NEW REGIONAL DYNAMICS & THE MOVE TO A GREEN SHIPPING FUTURE ISTANBUL, TURKEY

Meet with IBIA members and Industry for a full-day member and industry meeting. IBIA will host panels and round table discussions where you will be able to hear from the experts, engage in dialogue and have your say as we look towards the future of the industry as a whole.

Should you wish to attend or know more please email sofia.konstantopoulou@ibia.net
For more information: www.ibia.net

13-15 SEPTEMBER 2022

IBIA MEDITERRANEAN ENERGY AND SHIPPING CONFERENCE - MALTA

IBIA goes to Malta. Malta's rich and vibrant history sets us firmly on a path to a greener future. A host of prominent speakers will explore the benefits of green alternatives and environmental technologies which will carry the bunkering industry into the future and beyond. Malta's Maritime history stretches back over 7,000 years. Its strategic location has meant that it has always played a central role in shipping and trade in the region. Should you wish to attend or know more please email sofia.konstantopoulou@ibia.net
For more information: www.ibia.net

DIARY

4-6 OCTOBER 2022

SIBCON 2022 - SINGAPORE

Organised by the Maritime and Port Authority of Singapore, the Singapore International Bunkering Conference and Exhibition (SIBCON) has a proven track record. Powered by a Steering Committee of senior decision makers from industry, the event will bring to you unparalleled knowledge, engagement and collaboration opportunities.

For more information: <https://www.sibconsingapore.gov.sg/>

15-17 NOVEMBER 2022

IBIA ANNUAL CONVENTION 2022 HOUSTON, USA

The need to reduce emissions of air pollutants including SOx and NOx has been driving the industry toward new types of cleaner-burning fuels. Going forward, decarbonisation will have an even bigger impact. Which alternative fuels are currently in favour? How long will LNG remain part of the picture? When will we see the first large zero-carbon cargo ships, and how long will it take for these ships to become the majority? Join industry experts introducing what we should expect in the years ahead, how the new fuels will work in engines and what preparation needs to be done for the zero-carbon transition. Should you wish to attend or know more please email sofia.konstantopoulou@ibia.net

For more information:
<https://www.ibiaconvention.com/>

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

WORLD BUNKERING

Q3 2022... NOW OPEN FOR BOOKINGS

Q3 2022

SPECIAL FEATURES:

Fuel Quality

Most of the fears that the implementation of the 0.50% limit on sulphur in January 2020 would be associated with more quality issues have not been realised. We look at how the fuel testing sector is coping with compliant fuels and the challenges of contaminants not detected in standard tests.

.....

GEOGRAPHICAL FOCUS:

This issue concentrates on how disruption and changing patterns has affected four key regions:

N America

S America

Central America and Caribbean

Far East

In Q2, 2022 disruption caused by the economic isolation of Russia is affecting the whole global shipping and trading system. Six months on we will be looking at what that means to particular countries and ports. We also ask how the bunker industry in these regions, only starting to recover from the impact of Covid-19, is coping with the long-term challenges facing it, and especially decarbonisation.

.....

Malta Conference Preview

The IBIA Mediterranean Energy and Shipping Conference takes place in Malta on 13-15 September. We take a look at the main issues up for discussion.

.....

Regular Features

News, Views & Analysis

Plus: Interview, Industry News, Environment, Testing, LNG, Lubricants, Innovation, Legal News, Equipment and Services, Diary, Event Previews & Reviews





WORLD-CLASS BUNKERING SERVICES FOR OCEAN-GOING VESSELS

IMO 2020 COMPLIANT MARINE GAS OIL AND LUBRICANTS

Takoradi Port 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.

Sekondi Naval Base MGO Facility



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.

24-hour Contact on:

+233 244 274 027

+233 208 442 522

+233 509 220 000

+233 244 372 328

email: bunkers@goil.com.gh





LEADING BUNKER SUPPLIER IN THE INDIAN SUBCONTINENT

We are commencing bunkering in UAE ports- Dubai (Mina Rashid, Jebel Ali), Abu Dhabi (Mina Zayed), Sharjah (Hamriyah, Khor fakkan)

Discover Our Capabilities & Network

Axiom Global is an energy trading & bunkering company headquartered in Dubai, United Arab Emirates. The personnel at the helm at Axiom Global have over two decades of experience in energy trading, risk management & bunkering especially in the Indian subcontinent, Southeast Asia, Middle East and Africa region. Recently we are commencing bunkering operations in UAE Ports of Dubai (Mina Al Rashid, Jebel Ali), Sharjah (Hamriyah, Khorfakkan), Abu Dhabi (Mina Zayed), etc.

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Bunkering



Ship Chartering



Risk Management



OUR WORD IS OUR BOND

Axiom Global Oil & Gas Trading DMCC

Quality



Quantity



OnTime Supplies



Competitive Prices



Barge Operations & Oil Blending Consultancy



Sourcing



Shipping



Storage



Blending



Delivery

UNITED ARAB EMIRATES

Office no. 304, Indigo Tower,
Cluster F, J.T, Dubai- UAE
+971 55 7255550
+971 4 5148700
Info@axiomglobaltrading.com

INDIA

Building No. XI/275/142
Heaven Plaza Vazakkala,
7th Floor, Padamngal
Erakulam, Kerala 682021
+91 9009031543
+91 9874565585
axiomindia@axiomglobaltrading.com

SINGAPORE

11, King Chiew Street,
#02-11,
Singapore 059608
info@axiomglobaltrading.com