

WORLD



Q1 2023

PUBLISHED SINCE 1997

BUNKERING

THE OFFICIAL MAGAZINE OF IBIA

IBIA AT 30

LOOKING BACK, LOOKING AHEAD

INSIDE THIS ISSUE:

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CII HEADACHES

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30 YEARS YOUNG

Dear Reader

This issue marks IBIA's thirtieth anniversary by looking back and looking ahead. Nigel Draffin does a masterly job of sketching the organisation's history. Perhaps that is not surprising, he was one of the small band who established IBIA and is now one of the even smaller band that has been involved in its development throughout those three decades. Not surprisingly, his article is almost my number one must-read piece in this issue, even if nostalgia isn't like it used to be.

But, it is no good just looking astern. Safely navigating what lies ahead is the task that faces all of IBIA – its Board, Director, Staff and, most importantly, members. So, the key message of this issue comes from IBIA Chair Tim Cosulich. Based on recent hard work by all involved to strengthen the association as profound changes sweep through the industry, he says that “the good news is that 2023 will be a year of strong evolution for IBIA”.

Those changes are, as ever, covered in detail in this issue. Much of our coverage is focused on technical and regulatory change. However, in a thought-provoking article on the commercial side of bunkering, well known industry consultant and IBIA board member Adrian Tolson gives us a new concept and a new word. Actually, Tolson explains two words and two concepts, namely 'disintermediation' and 'reintermediation' in an optimistic Traders feature that asserts traders are “learning how to consistently make money”.

Turning to regulatory matters, IBIA Director and representative at IMO Unni Einemo says that in July “all eyes will be on the 80th session of the IMO's Marine Environment Protection Committee (MEPC 80) to adopt a significantly more ambitious greenhouse gas strategy”. She sketches out the main issues and observes: “This will be a tough debate, but failure to adopt a revised IMO GHG strategy at MEPC 80 is not an option anyone wants to contemplate.”

Unni Einemo also looks back at the recent MEPC 79 and explains in concise terms

the relevance of decisions taken then to the bunkering industry, ranging from the now agreed Mediterranean ECA through flashpoint reporting on the BDN, synthetic fuels, scrubbers, black carbon and the Arctic, biofuels and LCA guidelines to, finally, bunker licensing.

The last of those topics is closely linked to moves to mandate bunker measuring. As reported in our Quantity feature, there has been a major development in this respect, with the port authorities for Rotterdam, Antwerp and Zeebrugge announcing that bunker measuring systems will become compulsory. This is being warmly welcomed by IBIA.

Something that has received a decidedly mixed welcome is the coming into force of IMO's EEXI and CII regulations. Our feature takes a look at the discussions over, particularly, CII compliance but also reports on developments to assist ship operators with meeting the new requirements.

Bulk carrier owners' association Intercargo has strong views on CII and believes that the current CII framework should not be used as a benchmark for IMO's medium-term measures. Another body known for making its views clear is the World Shipping Council (WSC). On our Industry News pages, we report that WSC together with Danish Shipping and the Methanol Institute urge decision-makers to reach an agreement on the pending FuelEU Maritime legislative package intended to reduce shipping GHG emissions. Among several points made, WSC applauds the well-to-wake principle.

That reference highlights that shipping's decarbonisation cannot be seen in isolation. What is going on ashore, or at least very close to the shore, can be of relevance to shipping and bunkering. So, rather unusually, two of our features are mainly about shoreside development. Our Carbon Capture feature reports that an influential Oxford University report finds that greenhouse gas reduction targets cannot be met without a massive development of carbon capture

technologies. Such a move does appear to be already underway, notably now including in US where previous attempts to promote carbon capture had stalled. Increased research and development in this technology is bound to have implications for shipping. Meanwhile, a project is underway to build nuclear powered electricity generating barges for operation in Indonesia. They will use molten salt reactor technologies. It is being suggested that this is a step towards nuclear powered ships. Perhaps so, but I would keep my eye on carbon capture which is no longer the dark horse in the race to net zero.

As ever there is plenty more in this packed issue, including insightful regional reports from John Rickards on the Americas and the Western Mediterranean. And, for this issue only, we even include a poem.

This issue comes out just in time for the IBIA Dinner and I hope to meet you there.

Best wishes

David Hughes
Editor





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The responsibility for advertisements rests solely with the publisher. World Bunkering is published by Constructive Media on behalf of IBIA and is supplied to members as part of their annual membership package.



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Dear IBIA Members and Friends,

As I write, IBIA's Annual Gala Dinner in London is fast approaching, and this provides me with an opportunity to look back at the past 10 months since I took over as IBIA Chair, and to look ahead at what's coming next.

I was lucky enough to be elected IBIA Chair at a time when the organisation was once again on solid ground and able to count on a group of dedicated and talented professionals in our Secretariat and on our Board of Directors. Back in April 2022, during our first board meeting, we discussed and set out what the game plan would be for our first term, focusing on integrity and transparency, on the widespread adoption of a bunker licensing scheme including the use of MFM systems, and on generating valuable content to support our members as they navigate the energy transition phase.

At that time, we also decided to continue working on IBIA's structure, on the creation of Regional Boards, and on strengthening our existing Working Groups.

These focus areas came as a natural extension for what IBIA does as the "voice of the bunker industry" on the international stage. Our Director, Unni Einemo, represents IBIA at the IMO, providing us with the opportunity to literally have a seat at the table where decisions are made. At the same time, our regional conferences and our global events allow members to have a platform to exchange ideas, learn and network at a time when changes happen fast, and information and knowledge are the building blocks for companies to successfully adapt.

2022 was a good year for IBIA, mostly thanks to the time and effort of our Secretariat, our Regional Boards and our Global Board. We ran successful events in Istanbul, Malta, and Houston; we conducted online members meetings, and countless training sessions. Our Global and Regional Board meetings were well attended and always provided for a very lively and constructive debate. Finally, our participation and active contribution at IMO meetings was openly appreciated

by a number of industry players and international organisations.

With a few more months to go before the end of my first term, I am very grateful to the IBIA Board of Directors that, back in November 2022, they decided to confirm my chairmanship for one more year. While you will have to bear with me for one more year, the good news is that 2023 will be a year of strong evolution for IBIA.

Our Future Fuels Working Group, led by IBIA Vice Chair Constantinos Capetanakis, has already started working on a Port Readiness project. The Bunker Licensing and MFM Working Group, under the leadership of newly elected WG Chair Rahul Choudhuri, will continue to drive the ambitious agenda, targeting the implementation of bunker licensing and MFMs in the key bunkering hubs around the world. Rotterdam, which has already implemented a licence for bunker transporters, has decided to mandate bunker measuring systems along with the ports of Antwerp and Zeebrugge. IBIA is ready to support their initiative and press for more ports to follow suit.

In late February, at our (sold out!) Annual Gala Dinner we will celebrate IBIA's 30th anniversary. An organisation that has been able to adapt to the multiple and radical changes that our industry went through since the 90s, consistently leading the way.

In April 2023, it will be a true honour to welcome IBIA members from around the world in my home city, Genoa, for our Mediterranean Shipping Conference, gathering leaders from our industry to discuss the future of marine fuels, digitalisation, and regional dynamics... and all of this in – admittedly my slightly biased view – one of the best cities in the world!

Let me conclude by thanking those who have contributed to IBIA's success over the course of 2022, starting with our Director and Secretariat, as well as our Global and Regional Board Members, our Working Group Members, and our events' sponsors.

We have said many times now that IBIA is a member-led organisation; that idea is very much valid today and I cannot stress enough the importance of your active engagement in the life of the association, whether you are keen on joining a Working Group or a Board, whether you want to be a sponsor or you have an idea for an event that will inspire our members.

I look forward to seeing many of you in London soon, and in Genoa in April!

Ciao

**Timothy Cosulich,
Chair**





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IBIA AT 30: WHAT NEXT?

The world needs shipping, and ships need fuel. The marine fuel industry is the basis for our Association, so for the next 30 years IBIA will be part of the global energy transition

We are marking the 30th anniversary of the International Bunker Industry Association this year, a big milestone! One of IBIA's founding members, Nigel Draffin, shares the history of how our Association was formed in 1992 in this issue of *World Bunkering*, starting with the lead taken by Doug Barrow, the first Chairman of IBIA. From the outset, IBIA aimed to be an industry-wide association, open to representatives from fuel producers, traders, brokers, deliverers, ship operators, fuel analysis laboratories, P&I clubs, marine law firms and credit reporting agencies. Today, IBIA continues to embrace a diverse range of members. If you have an interest in the marine fuels sector, you are welcome to join IBIA, and as the market evolves, so does IBIA's membership base.

In my book, anything that is used to fuel a ship is bunkers. Oil-based bunker fuels are still by far the most dominant energy source for ships today. They present their own set of challenges for stakeholders that IBIA must remain attuned to. Over the years, new fuel types and technology solutions have come into the market to meet tightening environmental regulations. LNG and methanol are two of the alternative fuels that were initially taken up in emission control areas in response to efforts to reduce air pollution that has a negative impact on air quality. These fuels are also contenders in the race to reduce shipping's overall greenhouse gas impact, along with bio-derived fuels and ammonia. As a result, IBIA now has members invested in exploring and developing all these alternatives. Over the next 30 years, as the energy transition gathers pace, the activities and types of challenges faced by our members will evolve, and so will IBIA.

The first ever IBIA Annual Convention took place in 1993. Ever since, our Annual Conventions have been our flagship conference where our members, invited speakers and other delegates meet to

gain insights, discuss industry issues and network with industry peers. In recent years, we have held additional conferences and social events throughout the year, including those organised by our regional offices in Singapore and South Africa.

Our very first London industry gala dinner in February 1995 sowed the seeds for what has become the main social event in the bunker industry's calendar. Attendance at the IBIA Annual Dinner in London has grown from about 200 initially to around 1,000 as our members and their guests come together for a black-tie event to enjoy the company of old and new industry friends. Long may it continue!

Working groups (WGs) have always been an important feature of IBIA. They are a way of bringing together relevant experts from our membership to work on specific projects or subjects. Today, they include a Future Fuels WG and a Bunker Licensing and MFM WG, and a Digitalisation WG is set to start up. The activities and types of WGs at any time reflect the focus and priorities outlined by the Board of IBIA, and industry needs. One of our longest-standing ones, the IBIA Technical WG, will be relevant for the foreseeable future as we will always need technical expertise in the work IBIA is involved in, especially at the International Maritime Organization (IMO).

IBIA achieved NGO consultative status with the IMO in 2005. This gives IBIA the right to attend IMO meetings to represent our industry's interests and provide relevant expertise to IMO's work and deliberations alongside other NGOs representing various stakeholders in the maritime sector and environmental groups.

The timing of IBIA gaining this direct access to the IMO's work was auspicious. It coincided with MARPOL Annex VI entering into force, and the start of continuous amendments. Negotiations began immediately to make the initial emission limits more stringent. This

global regulation has been, and will continue to be, a driving force for change in our industry. IMO 2020 was the most transformative amendment to MARPOL Annex VI so far. Many more will come as part of the IMO's work to reduce GHG emissions from global shipping. IBIA contributed significantly to the development of IMO guidelines and regulatory amendments to ensure a smooth transition to IMO 2020. We continue to contribute to IMO's work and discussions on environmental and safety aspects linked to marine fuels. Multiple fuel and technology solutions to reduce GHG emissions from shipping, and the need for documentation to ensure they are both environmentally sound and safe to use, has increased both the scope and complexity of this work. IBIA is striving, both at the IMO and elsewhere, to be part of the committed efforts and cooperation from multiple stakeholders to identify the solutions that will reduce, and ultimately eliminate man-made GHG emissions.

Shipping has always been crucial to trade, and takes pride in being the engine of global trade. As we celebrate IBIA's first 30 years, we can take pride in the fact that IBIA and our members are, directly or indirectly, fuelling the engines of global trade, and will continue to do so in the future.

Unni Einemo,
Director, IBIA
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IBIA'S 2023 BEGINS WITH A BANG!

IBIA's upcoming events are enjoying an enthusiastic reception, a testament to the trust and support of our members

2023 has started with a great success for the IBIA marketing and events team! Not only are we celebrating our 30-year anniversary, in a record first, the IBIA Annual Dinner for 2023 is fully sold out six weeks prior before the much-anticipated event. They say start the year as you would like it to end and we are thrilled to say that is what has happened.

The much-anticipated IBIA Annual Dinner finds a new home for 2023, at the elegant and modern Park Plaza Westminster Bridge for an unforgettable celebration and black-tie evening shared with just over 1,000 of our members and their guests. As a well-established fixture in the bunker industry's calendar, we are looking forward to welcoming our valued members and their guests for an evening of networking and sharing our very special anniversary.

We could not have achieved this success without the support of our members as well as the invaluable support from our sponsors, namely Platinum sponsor: Sing Fuels Pte Ltd, Gold sponsors: BP Marine, Arte Bunkering and Sea Crown, Silver sponsors: O Bunkering and Gulf Petroleum Supplies, Bronze sponsors: ZeroNorth and Green Fuels International and our Advertising sponsors: Terpel, Reseaworld, Base Blue and Drumo Coin.

In April we are hosting the second IBIA Mediterranean Energy and Shipping Conference in Genoa, Italy. We are honoured to have Marco Bucci, Mayor of Genoa, as well as Paolo Signorini, Chairman of the Genoa Port Authority as our Keynote Speakers. Our agenda is almost complete and the conference will focus on Regional Dynamics, Emission Regulations / Clean Shipping & Decarbonisation, and Financing Bunker operations in current market conditions. A panel will explore the importance of leadership in the bunker industry. We already have several key industry players confirmed as speakers and sponsors and look forward to an information-rich

programme. This is definitely one not to be missed! The conference will end with a special gala dinner at the beautiful Villa Lo Zerbino.

Also in April, there will be the opportunity to join IBIA Asia in Singapore as part of IBIA's celebration of 30 years as an association. This is IBIA's most prestigious networking event in Asia and one of the highlights of year. Following the successful IBIA Asia Annual Dinner 2019, IBIA Asia will be hosting the dinner in Singapore on Thursday, 27 April 2023 at the beautiful Parkroyal Collection, Marina Bay, Singapore.

The IBIA Asia Gala Dinner has been part of the Singapore Maritime Week's social scene for many years. The highly successful event attracts about 200 players in maritime and bunkering industries, not only from Singapore but also from many countries in the region. The gala dinner has also become an annual social event which the industry looks forward to for a night of toasts, good cheer and gourmet delights.

And here is another date for the diary. The 4th IBIA Africa Conference 2023 will take place in mid-2023 in West Africa. We will be announcing more detail just as this publication hits your desks, so look out for updates soon.

Last but certainly not least, the IBIA Annual Convention 2023 will take place in Dubai on 7-9 November. With the support of a newly formed Middle East Regional Board, chaired by Colin Holloway, Global Head – Technical at Cockett Marine, we look forward to a very successful, informative and well attended Convention.

I echo my colleague Sofia's sentiment, that we are so very grateful to our members who trust us with their business and to represent our members as the voice of the global bunker industry. Our success story remains incomplete without the support of our members, sponsors, speakers and delegates as they help us spread the word to boost our efforts.

It is a great privilege to work alongside you and our Global and Regional Boards, Secretariat, Working Groups and members to further the success of IBIA and I look forward to a very successful 2023 being at your service along with Stefan Tiu, who joined the team for this year while Sofia is on maternity leave.

For more information about our activities, you can visit www.ibia.net.

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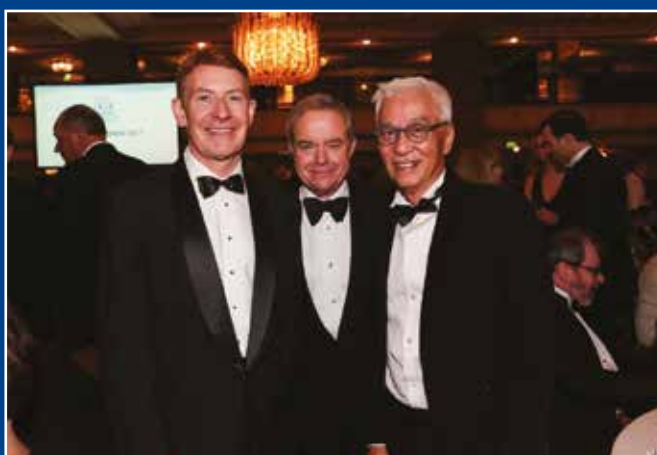
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IBIA GALA DINNER - OVER THE YEARS







IBIA, HOW DID WE GET HERE?

Nigel Draffin recalls the International Bunker Industry Association's first 30 years

In 1988, as a member of the OCIMF observer group, I attended an IMO meeting of the Bulk Liquids and Gases (BLG) Sub-Committee, discussing potential regulation of atmospheric pollution from sulphur oxides. The delegates present included a number of people who I would meet again at the first Singapore International Bunkering Conference (SIBCON) later that year.

It was at the 1992 SIBCON that the idea of a bunker industry association was informally discussed. The lead in developing this idea was taken by Doug Barrow, who decided that a small group of industry professionals representing each sector of the industry should progress that idea to see if there was an appetite to create an association.

If I remember correctly, we met initially at the Churchill Hotel in London and this group (the steering group) had representatives from fuel suppliers, traders, brokers, deliverers, ship operators, fuel analysis laboratories, P&I clubs, marine law firms and credit reporting agencies. From the start it was clear that we wanted an industry-wide association rather than a

trade body. Two of us worked for oil majors (one on the ship operation side and the other on technical support for bunker sales) and our employers were happy for us to engage with certain provisos – the use of an anti-trust statement read out before each meeting and that neither of us could be responsible for any portfolio covering technical or commercial issues. That is how Bob Thornton got the Environment working group and I got Safety!

The group created a proposed structure where the association would be run by a council of management elected by the members. The members could be individuals or commercial companies, and any specific issues raised would be dealt with by working groups of interested members reporting back to the Council of Management who in turn reported to the membership. Our first (unpaid) administrator was David Barnet and we operated out of an office in Kingston upon Thames.

We decided to formally launch at a convention which was held at the Disney World resort in Orlando – using the

facilities of the Swan and Dolphin hotels. Much of the credit for the arrangements should go to Llewellyn Bankes-Hughes (who attended the steering group on behalf of his boss, Stuart Kenner of MRC who was not well enough to attend at the time). Was it his idea to launch a serious maritime association at Disneyland? You will have to ask him. In any event, it worked!

Doug Barrow wore a big badge saying I.B.I.A. and told us all that the letters stood for “I Believe In Action”. We had a couple of hundred attendees, a tremendous programme, good discussions and a grand time – I still have memories of Bob Thornton (then with Exxon) and Pat Studdert (Buffalo Marine) singing “All my Exes live in Texas”. We ended up with a membership of hundreds and the start of the first truly international bunker industry association.

Doug, elected as Chairman (because when the group members were asked to step forward if they wanted to be considered, we all took one pace back except Doug who was not concentrating) decreed that



each of the initial working groups had to produce one “deliverable” item each year. My Safety group chose to produce a simple bunkering safety card which could be handed to the receiving ship by the deliverer at each bunkering – this was produced, well received and issued in English with a Spanish version contributed by Alejandro Risler of Risler Argentina. The group were great and covered all five continents, I could not have asked for more.

The safety working group demonstrated the need for education and training, so I was encouraged to form an Education working group and out of this grew the IBIA one day basic bunkering course which (much updated) is still in use.

The Council of Management expanded from 16 up to an eventual 25 members from whom we had the four officers of the Association: Chairman, Vice Chairman, Immediate Past Chairman and Hon Treasurer. In 2009, the Council of Management was replaced by a Board and the administrator (General Secretary) was replaced by a Chief Executive who became an ex officio member of that board. Our first General Secretary was Peter Goodman and he was succeeded in 2001 by Ian Adams who was a marine engineer and ex seafarer. The early days of volunteers transitioned to a secretariat who dealt with the day to day running of the Association. Special mention should be made of Robert Hough who produced our monthly newsletter which he and his wife valiantly stuffed into envelopes and posted to the membership. Ian actively lobbied for IBIA to have Consultative status at the IMO, which was granted in November 2005 and since that time we have had IBIA representatives at all of the committees, sub-committees and correspondence groups where bunkering related issues are being discussed.

The IBIA Annual Conventions have been the rallying point for members to meet, debate, discuss and party since our first in 1993. Our policy was to move the venue around the globe to maximise the number of members able to attend. We have been to Europe, the Middle East, Asia, Africa, the Caribbean and to both North and South America.

I remember our 1995 Annual Convention in New Orleans, the trip on a real paddle steamer (where Mike Ball and I spent most of the trip in the engine room), the debates in the conference hall (would you let your son or daughter join our industry? – only one panellist said no) and the jolly time at the Royal Sonesta bar late evening where we were asked by a local about the “bunker industry”. We told him about the bunker supplier from Hartlepool (David Peart) who supplied the best sand for bunkers in the world, the bunker buyer (Ivar Tonnesen) who sourced sand for golf course bunkers around the world, the bunker tester (Chris Fisher) who analysed the sand and the dimensions of each bunker. We kept it up for about 15 minutes and when our friend realised that we might not be telling the truth, he said he wanted to join IBIA as we obviously had much more fun in our association than he had in the Coin Operated Laundromat Operators association!

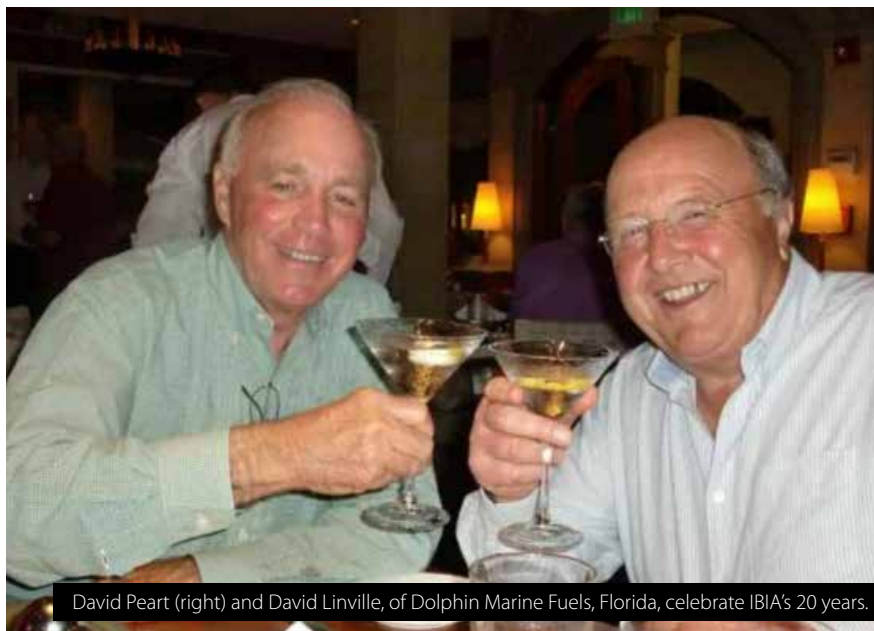
In 2014 we went to Hamburg for our Annual Convention and had a splendid time, only to see our speaker line-up change very suddenly when some speakers had to leave very quickly to return to Copenhagen and other delegates spent two days on mobile phones dealing with the sudden collapse of OW Bunkers. This did not detract from the discussions or the enjoyment of seeing the IBIA Chairman at the time, Jens Maul Jorgensen, dancing in lederhosen.

The 2019 Convention took place in Istanbul at the magnificent Ciragan Palace Kempinski and was attended by 260 delegates. Apart from the usual mix of session topics, we had a private visit to the Hagia Sophia and a wonderful boat trip on the Bosphorus. The only question was: were we in Europe or in Asia? Well, because of a dinner held near Uskudar, we were in both!

The next two Annual Conventions were virtual, on line, events due to the pandemic. Maybe we were a little ambitious with the 2020 event as we did suffer from technical issues. It was an attempt at a virtual reality offering without the headsets but we probably tried to do too much – the actual presentations and discussions went well but the “networking” was a little problematic. In 2021 we adopted a more conventional approach.

Alas, I was unable to attend the 2022 convention in Houston but I am sure you read about it in the Q4, 2022 issue of *World Bunkering*.

And now to the IBIA Annual Dinner: Doug thought that an annual dinner in London might boost our profile and give members a chance to socialise. The date chosen was the first night of IP week in 1995, which was Monday February 13 (as it would only have to compete with a couple of non-bunker related alternatives). IBIA's



David Peart (right) and David Linville, of Dolphin Marine Fuels, Florida, celebrate IBIA's 20 years.



Hon Sec. David Peart (whose daughter later worked in the IBIA Secretariat part time) was given the job of organising the event. The Council thought that it was worth going ahead if we could break even with 40 attendees – David said he was very nervous about getting the numbers but we advertised tables of 10 and within two weeks we had sold 15 tables. The final number was over 200 guests and the event was a roaring success.

Over the years, the dinner grew and grew. We quickly outgrew our original venue (The Carlton Tower), migrating to the Intercontinental, the Hilton and then the Grosvenor House Hotel on London's Park Lane as our number went from 230 to 550 and then 700. In recent years the Annual Dinner has peaked above 1,000 guests. The format changed with the growth in size, changing from a typical formal Black Tie dinner with speeches after the meal to a less formal (but still Black Tie) event with shorter speeches before the meal and a large networking get-together after the meal.

The concept of regional groups was foreseen by the original steering committee and actually started to come together in Singapore through the efforts of local members and the cooperation between IBIA and the Maritime and Port Authority of Singapore on standards, regulations and especially the initial trials of Mass Flow Metering. Kwok Fook Sing became our regional manager of the IBIA Asia region in 2011. The current regional

manager in Asia is Siti Noraini Zaini. The Asia region has hosted dinners, golf days, local seminars and is very active in training in Singapore and elsewhere in Asia. In 2013, the many years of hard work by members in South Africa enabled the opening of the Africa regional office where Tahra Sergeant has been the regional manager since April 2014. This has enabled IBIA Africa to host regional conferences. Both these regions now have their own IBIA Regional Boards and one of each of those board members is also on the main IBIA Board. At the convention in Houston last year, we had the first meeting of the Americas Regional Board moving us closer to having a full representation of the regions with discussions ongoing for the Middle East Regional Board, set to be announced in connection with the 2023 IBIA Annual Convention in Dubai.

I also need to record the efforts of the female members of the Board over the years. Typically, we have always had at least one and sometimes two female board members. I should also make mention of Eugenia Benavides serving on the board for 7 years from 2011 and returning to the board in 2019. Our Secretariat, throughout the existence of the association, has had very strong female bias. I have already mentioned Kirsty Peart in the early years but we have had succession of competent and capable women working in the secretariat including Anne Chambers, Charlotte Egan, Channette Roughton, Sofia Konstantopoulou, Tara Morjaria, Tahra Sergeant, Siti Noraini Zaini and of

course our intrepid director Unni Einemo. Most members do not know how much they contribute to the running of the association, but without them we would be lost.

Another recent development has been to hold regional conferences, aimed at local issues and providing a platform for additional training with events including Tenerife in 2018, Jamaica, Cyprus and Panama in 2019 and both Istanbul and Malta in 2022. All were well supported with strong local attendance.

Just for the record, here is a list of IBIA's Chairs:

1	Doug Barrow, May 1993 - May 1996
2	Antonio Cosulich, May 1996 – October 1998
3	Ivar Tonnesen, October 1998 – February 2001
4	Chris Leigh-Jones, February 2001 – February 2003
5	Nick Ladis, February 2003 – February 2005
6	Don Gregory, February 2005 – February 2007
7	Fritz Fredriksen, February 2007 – February 2009
8	Mike Ball, April 2010 - April 2011
9	Bob Lintott, April 2011 – April 2012
10	Nigel Draffin, April 2012 - April 2013
11	Simon Neo Tiau Gee, April 2013 – April 2014
12	Jens Maul Jorgensen, April 2014 – April 2016
13	Robin Meech, April 2016 – April 2018
14	Michael Green, April 2018 - April 2020
15	Henrik Zederkof, April 2020 - 2022
16	Tim Cosulich, April 2022 - present

These gentlemen came from a variety of backgrounds, including seagoing navigators, seagoing engineers, ship owners and operators, bunker traders and bunker suppliers, analysis laboratories, management consultants and research engineers. This demonstrates the range of interests, talents and experience which has helped IBIA to represent the bunker industry since 1993.



Nigel Draffin

IBIA EVENTS 2023

We invite all our members to join IBIA at our upcoming events for 2023. IBIA aspires to be the voice of the global bunker industry and with your continued support we will be able to achieve this in 2023.



20 April 2023
IBIA Mediterranean Energy and Shipping Conference
Genoa, Italy



26 April 2023
IBIA Asia Gala Dinner
Singapore, Asia



June / July 2023
IBIA Africa Energy and Shipping Conference
Accra, Ghana



7 – 9 November 2023
IBIA Annual Convention 2023
Dubai, United Arab Emirates



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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
FEBRUARY		
21 - 22	2-Day Advanced Bunkering Course (SS600:2022 & SS648:2019)	Singapore, Asia
27	IBIA Annual Dinner 2023	London, United Kingdom
MARCH		
15 - 16	2-Day Basic Bunkering Course (SS600:2022 & SS648:2019)	Singapore, Asia
APRIL		
20	2nd IBIA Mediterranean Energy and Shipping Conference	Genoa, Italy
26	IBIA Asia Gala Dinner	Singapore, Asia
JUNE / JULY		
TBC	4th IBIA Africa Energy and Shipping Conference	Accra, Ghana
NOVEMBER		
7 - 9	IBIA Annual Convention 2023	Dubai, UAE

BUNKER INDUSTRY EVENTS 2023

FEBRUARY		
28 - 2 MARCH	International Energy Week	London, United Kingdom
MARCH		
9	Green Seas Fuels Forum	New York, United States of America
13 - 15	FUJCON (Fujairah Bunkering and Fuel Oil Forum)	Fujairah, United Arab Emirates
21 - 23	CMA Shipping Conference & Exhibition	Stamford, Connecticut, United States of America
APRIL		
24 - 28	Singapore Maritime Week	Singapore, Asia
MAY		
15 - 19	Madeira Maritime Week	Funchal, Madeira, Portugal
23 - 25	Argus Green Marine Fuels Conference	Amsterdam, Netherlands
JUNE		
12 - 14	Maritime Week Americas	New Orleans, United States of America
26 - 30	Maritime Week Gibraltar	Gibraltar
SEPTEMBER		
3	Transparency in Bunkering	London, United Kingdom
11 - 15	London International Shipping Week	London, United Kingdom
20 - 21	Transport Evolution Africa Forum and Expo	Durban, South Africa
OCTOBER		
17 - 18	Marine Energy Transition Forum	Antwerp, Belgium
19 - 20	ARACON	Rotterdam, Netherlands

*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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IBIA AFRICA WELCOMES NEW REGIONAL BOARD MEMBERS

Looking to a growing region as we welcome new Board Members from Mauritius and Nigeria

As we enter 2023, we celebrate IBIA's 30-year anniversary. I also have cause for celebration as I will soon enter my 10th year as the Regional Manager for IBIA in Africa, and have witnessed the leaps and bounds we have achieved during this time as an association. It has been my privilege and honour to serve the bunker industry and work with industry giants.

It is a very exciting year for IBIA Africa as we introduce two new members to the Africa Regional Board. **Trish Omiyi**, Chief Executive Officer, Adept Oil joins us from Nigeria. Trish is Founder and CEO of Adeptoil Ltd, an African-focused energy firm, with a strong interest in the evolving energy landscape. She has positioned her company's marine fuel supply business on the curve of the lower carbon economy movement by unlocking proximal and competitive supply to West African bunker hubs and ports from the budding teapot refining industry in Nigeria.

We also welcome **Rajiv Servansingh**, General Manager, State Trading Corporation (STC), Mauritius, who over the past 20 years, has directed and chaired a number of industry and government institutions. STC was set up in Mauritius in October 1982 to be the trading arm of the Government of Mauritius. It operates under the aegis of the Ministry of Industry, Commerce and Consumer Protection. The STC has been entrusted with the responsibility of importing certain essential commodities including all petroleum products and liquefied petroleum gas (LPG) traded in Mauritius.

Our new board members join an illustrious collection of Africa marine fuel experts on the IBIA Africa Regional Board. More information about all our Board members may be found on the IBIA website.

The current IBIA Africa Regional Board members are:

- Paul Maclons, IBIA Africa Chair, CEO, African Marine Solutions Group (AMSOL)
- Grant Bairstow, Vice President HSSEQ, Aviation and Marine Technical and Group Audit, Vivo Energy
- Jon Hughes, Managing Director, Dan Bunkering Africa
- Siya Maya, Managing Director, South African Marine Fuels (SAMF)
- Trish Omiyi, CEO, Adept Oil
- Rajiv Servansingh, General Manager, STC Mauritius
- John Tagoe, Head of Technical & Special Products, GOIL Company Limited (GOIL)

The focus for IBIA Africa in 2023 will be on growing the membership and ensuring that we meet the industry's needs in Africa. This will be done through our IBIA Africa Conference and through online member engagement and meetings, where we can have open and frank discussions as to what the needs are for the Africa bunker industry.

We continue to finalise plans for the 3rd IBIA Africa Conference, which will take place in Accra, Ghana in the middle of 2023 (date not available at time of going to print). We look forward to bringing the Africa shipping and bunker industry together and engaging in a meaningful manner on regional and international topics of interest.

As I write this, I am attending Petrosport's Maritime Week Africa alongside 140 delegates from Africa and the global bunker community, hosted in my home town, Cape Town, South Africa. We are very pleased to see so many of our IBIA members not only attending but participating as speakers and sponsors. After a period of little in-person activity it is great to have suppliers and buyers highlighting the challenges and opportunities presented by the uniquely diverse African bunkering industry.

Should any of our members wish to engage further regarding the above, you are encouraged to contact me directly, particularly should you wish to speak at and participate in the IBIA Africa Conference mid-year.

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

I wish you all a successful and prosperous 2023 year, as we work together to grow Africa's bunkering landscape.

Tahra Sergeant,
Regional Manager: Africa
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S: [sergeant.tahra](https://www.sergeant.tahra) W: [ibia.net](https://www.ibia.net)





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ASIA PREPARES FOR A GREEN FUTURE

Hello, and Happy New Year!

In January, the Maritime and Port Authority of Singapore (MPA) released the port's bunker sales volume for 2022. Some interesting statistics to note: there was a 6.2% increase in bunker sales volume for HSFO; a 6.2% dip for MGO; and 140,000 tonnes of biofuels blends were delivered in the Port of Singapore in over 90 operations.

Various factors affect the demand for the different types of fuels including the Russia-Ukraine war and more vessels fitted with scrubbers coming into the market. We are seeing demand for biofuel blends as the industry begins to transition to a more sustainable and greener future. With the launch of a provisional national standard on marine biofuel specifications (WA 2:2022) in Singapore, we can expect an uptake in demand for biofuels blends.

We are also seeing other ports in Asia preparing to support the industry in achieving the IMO's GHG Strategy – China successfully completed its first ship-to-ship transfer between the LNG bunker vessel *Xin Ao Pu Tuo Hao*, and a container ship in Shenzhen.

IBIA Asia Dinner

IBIA Asia is pleased to announce that we will once again be organising our IBIA Asia Dinner after a three-year hiatus. To be held in conjunction with the Singapore Maritime Week (SMW), the IBIA Asia Dinner will take place at the PARKROYAL Collection Marina Bay on 26 April 2023. Further details including booking and sponsorship opportunities will be shared soon.

Engagement is key as we head towards our greener future. It has been six months since I took on the role of Regional Manager, Asia for IBIA. Over the past few months, I have taken the opportunity to meet some of you, our members, to introduce myself and more importantly, to understand how IBIA can support, and work together with you in this region. I will continue to engage with our members, as well as relevant stakeholders and organisations throughout the year.

Siti Noraini Zaini
Regional Manager, IBIA Asia
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Trader

Mohamad Yahya

Al Mafraq International

Trading FZC

Middle East

Trader, Supplier (Physical)

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Ostool Bunkering SPC

Middle East

Trader, Supplier

Bijan Shahbaz

Global Fuel Supply ApS

Europe

Supplier, Trader

Kgomotso Selokane

Heron Marine South Africa

Africa

Storage, Service

Rachel Caruana

Evos Malta Ltd

Europe

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Asia

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Other

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Mohsin Fakh

**Saudi Shipping and Maritime
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MEPC: CRUCIAL DECISIONS

IMO is due to adopt a more ambitious GHG Strategy this year, but this monumental decision is not the only subject affecting our industry. IBIA's IMO representative Unni Einemo reports on developments

In July 2023, all eyes will be on the 80th session of the IMO's Marine Environment Protection Committee (MEPC 80) to adopt a significantly more ambitious greenhouse gas strategy. The IMO's initial GHG Strategy from 2018 calls for a 50% reduction of all GHG emissions from international shipping by 2050 (compared to 2008), and a reduction in the carbon intensity (CO₂ emitted per transport work) of 40% by 2030 and 70% by 2050.

During MEPC 79, which took place from 12-16 December 2022, a large share of IMO Member States argued for GHG emissions from shipping to be completely phased out by 2050. There was, however, significant opposition from Member States that are concerned this is not realistic and could have disproportionately negative impacts on developing countries. There were also diverging views on adopting interim GHG reduction targets in the period between 2030 and 2050.

There are two main areas of discussion: the level of ambition (i.e. the timing and extent of GHG emission reduction targets), and the "basket of measures" we will need to support the agreed targets. With diverging policy opinions and ideas on the table, the two meetings of the Intersessional Working Group on GHG Emissions (ISWG-GHG) scheduled ahead of MEPC 80 in July

need to thrash out a solution that can get majority support. This will be a tough debate, but failure to adopt a revised IMO GHG strategy at MEPC 80 is not an option anyone wants to contemplate.

Regarding the "basket of measures", we see convergence of views toward combining market-based measures (MBMs) with technical elements in the form of a GHG Fuel Standard (GFS). The most favoured type of MBM seems to be a bunker levy scheme putting a price on carbon emissions, or CO₂ equivalents (CO₂e) to cover other GHGs such as methane and NO_x, potentially combined with a rebate system to reward early movers. For the GFS, there is majority support for this standard to take well-to-wake (full lifecycle) emissions into account. It means it looks likely we will get a well-to-wake GHG intensity fuel standard, phasing in requirements for ships to use a growing portion of fuels that emit less CO₂e than fossil fuels.

IBIA supports this direction of travel, but we are concerned about the complexity of documenting well-to-wake emissions. We take part in the Correspondence Group on Marine Fuel Life Cycle GHG Analysis that is tasked with developing lifecycle assessment (LCA) guidelines to support this policy, which are needed in time for MEPC

80. Documentation requirements outlined in the draft go far, far beyond anything we see today and it seems clear that only professional certification bodies will be able to provide the level of detail required from the supply chain to document well-to-tank emissions.

For now, the GHG debate is very political, but moving in the right direction, so let's turn our attention to other decisions and items of importance to the marine fuels sector from MEPC 79.

Mediterranean ECA

As expected, MEPC 79 adopted amendments to MARPOL Annex VI to designate the Mediterranean Sea, as a whole, as an emission control area (ECA) for sulphur oxides, reducing the sulphur limit in from 0.50% to 0.10% for ships operating within the ECA. The amendments will enter into force on 1 May 2024, while the requirements take effect on 1 May 2025.

IBIA played a small part in achieving agreement on the new ECA by commenting to MEPC 78, earlier in the adoption process, that we were confident of sufficient availability of compliant fuels. Ships are already required to use maximum 0.01% sulphur fuel while at berth in the region's European Union ports, and due to existing ECAs in Northern Europe, North America and the Caribbean, MGO meeting



a 0.10% sulphur limit is widely available around the world today.

Flashpoint reporting on the BDN

Following complex discussions, MEPC 79 adopted an amendment to MARPOL Annex VI regarding information to be included in the Bunker Delivery Note (BDN).

The adopted amendment says the BDN must contain:

"The flashpoint (°C) specified in accordance with standards acceptable to the Organization, or a statement that the flashpoint has been measured at or above 70°C."*

The *footnote specifies the testing standard to be used is ISO 2719:2016, *Determination of flash point – Pensky-Martens closed cup method, Procedure A (for Distillate Fuels) or Procedure B (for Residual Fuels).*"

This new requirement under MARPOL Annex VI will enter into force on 1 May, 2024.

The text of the new requirement has been aligned with amendments to SOLAS chapter II-2 that were adopted by the Maritime Safety Committee (MSC) in November this year – which we covered in detail in the Q4, 2022 issue of *World Bunkering*. The SOLAS amendment will enter into force on 1 January, 2026.

IBIA was active in plenary and the drafting group tasked with finalising the regulatory text on the subject, highlighting unintended consequences. The text, as adopted, could cause confusion – something we have already seen evidence of. So, let's reiterate some

important messages about what this new requirement actually means:

Firstly, there is no change to the flashpoint limit; it continues to be no less than 60°C for all oil fuels unless specifically provided for use in emergency generators, where oil fuel with a flashpoint of not less than 43°C may be used. ISO 8217 Table 1 (Distillates) has one grade for this purpose, namely DMX, with a minimum flashpoint of 43°C. All other ISO 8217 grades for marine distillates and marine residual fuels specify a 60°C minimum for flashpoint.

Secondly, the closed-cup flashpoint test will provide a specified temperature when an ignition source produces a "flash" in the sample. If this flash occurs at a temperature below 70°C, this exact temperature must be reported on the BDN. If, however, the sample is heated to 70°C or above without producing a flash, there won't be an actual

measured flashpoint temperature to report, but this is sufficient to meet the requirement for a statement that the flashpoint has been measured at or above 70°C.

Paving the way for synthetic fuels

As the IMO focuses on ways to reduce GHG emissions, existing regulations have come under scrutiny for issues that may hinder progress, in particular a requirement in MARPOL Annex VI that fuels other than regular oil-based fuels must not cause an increase in NOx emissions.

In June last year, MEPC 78 approved a Unified Interpretation (UI) of regulation 18.3 of MARPOL Annex VI concerning the use of biofuel. It issued MEPC.1/Circ.795/Rev.6 which allows the use blends with up to 30% bio-content without having to provide additional evidence of compliance with the NOx Technical Code of MARPOL Annex VI. The UI also facilitates use of fuels with up to 100% bio-content.

MEPC 79 approved an extension of the scope of the UI set out in MEPC.1/Circ.795/Rev.6 to also include synthetic drop-in fuels. IBIA was instrumental in the discussion on the subject. EUROMOT, another NGO with consultative status at the IMO, proposed amending the UI in MEPC.1/Circ.795/Rev.6 to include synthetic drop-in fuels belonging to the group of RFNBOs (renewable fuels of non-biological origin).





A majority of delegations supported the proposal, highlighting that synthetic fuels were of higher purity than most biofuels and thus lead to better NO_x performance. Several other delegations expressed concerns regarding the lack of clarity on the scope of definition of "RFNBOs" and the lack of underlying data to justify the need for amending the unified interpretation.

IBIA helped by pointing out that the ISO 8217 standard for marine fuels, which covers regular oil-based fuels, says the term "fuels" is currently used to include "hydrocarbons from synthetic or renewable sources, similar in composition to petroleum distillate fuels". IBIA also pointed out that while synthetic fuels are covered within the scope of ISO 8217:2017, MARPOL Annex VI, regulation 18.3 is largely reflective of the 2005 version of ISO 8217 where "synthetic or renewable sources" were not included in the scope.

Following discussion, it was agreed to refer to "synthetic fuels" instead of "RFNBOs" and to include a definition of synthetic fuels originating from the ISO 8217:2017 standard, as follows: "For the purposes of this interpretation, a synthetic fuel is a fuel oil from synthetic or renewable sources similar in composition to petroleum distillate fuels".

MEPC.1/Circ.795/Rev.7 reflects the change. This confirms that the Unified Interpretation of Regulation 18.3 of MARPOL Annex VI related to NO_x emissions when using biofuels should also be applicable for fuels with a synthetic fuel content of up to 30%.

Scrubbers under scrutiny

Water discharges from exhaust gas cleaning systems (EGCS) continue to be a vexed subject, with diverging views about how to arrive at EGCS discharge emission factors. During these discussions, IBIA stated: "We support the call for submissions proposing emission factors to describe the methodology, and include information on the exact raw data and whether such data have been used in full, or selectively. Decisions on emission factors should be evidence-based, and as such we need transparency about the evidence provided."

More controversially, MEPC 79 debated a proposal to completely ban EGCS discharges, arguing this cause pollution that could contravene the United Nations Convention on the Law of the Sea (UNCLOS). This met with many objections and saw only limited support, but the Committee asked the IMO Secretariat to provide legal advice to be presented at MEPC 80.

IBIA commented on the proposal, highlighting that while the submission suggested that pollution from EGCS discharges may be in contravention of UNCLOS, a range of studies have concluded that the risk to the marine environment and marine aquatic organisms are in the acceptable range, or even negligible from both short-term and long-term perspectives.

With such conflicting outcomes from studies, it is hard to see how the IMO can make truly evidence-based policy decisions. There's a strong push from many parties to use a "worst case scenario" outlook. This points to increasingly stringent discharge criteria for scrubbers in the future, but it seems unlikely to be decided during 2023 as the next in-depth discussion looks set to take place at the IMO's sub-committee on Pollution Prevention and Response (PPR) in 2024.

Black carbon and the Arctic

MEPC 79 heard submissions from environmental NGOs urging IMO to speed up efforts to reduce the impact of on the Arctic from black carbon (BC) emissions. IBIA made a statement to plenary on the subject, noting the deliberations taking place in the Correspondence Group (CG) on air pollution, which we participate



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Feedstocks for biofuels must be sustainable ©iStock

in. The subject is due to be thoroughly discussed at PPR 10 in April this year.

"In the meantime, we reiterate our full support for Resolution MEPC 342(77), in particular the final paragraph that urges members states and ship operators to voluntarily use distillate fuels or other clean alternative fuels or methods of propulsion that can help reduce black carbon emissions in the Arctic," IBIA told MEPC 79.

Biofuels and LCA guidelines

Several papers on biofuels, both from previous MEPC sessions and new submissions, were considered during MEPC 79. Many of these dealt with concerns about compliance with the NOx Technical Code, most of which have been resolved by the unified interpretation to regulation 18.3 of MARPOL Annex VI in MEPC.1/Circ.795/Rev.6 that was approved by MEPC 78.

The other subject related to how biofuels can support shipping in reducing GHG emissions. Current IMO regulations only recognise tank-to-wake emission factors, meaning biofuels offer little or no advantage at present.

Most delegations speaking at MEPC 79 put faith in this being addressed under the Guidelines on life cycle GHG intensity of marine fuels (LCA Guidelines), which should be available for approval at MEPC 80.

However, India has proposed that MEPC 80 should also adopt a resolution at the same time that any biofuel manufactured from recycled sustainable biomass, seed oil from tree species that do not compete for food

and fodder, and certified as a sustainable fuel as per the LCA guidelines, be assigned zero CO₂ equivalent value for use in the IMO fuel consumption data collection system (DCS) and Carbon Intensity Indicator (CII) regulations.

MEPC 79 invited interested Member States and international organisations to consult with the delegation of India in their further consideration of developing a draft MEPC resolution on the uptake of sustainable biofuels for shipping at MEPC 80.

It remains to be seen if the LCA Guidelines will be ready in time for MEPC 80, but it is clear that India and others are keen to ensure that sustainable biofuels will become recognised as a way to reduce GHG emissions from shipping as soon as possible, in particular in light of the CII regulation that is already in force.

Bunker licensing

Two documents on bunker licensing were discussed at MEPC 79. One was MEPC 79/INF.24 from IBIA and BIMCO, highlighting the outcome of our joint survey. The survey identified broad support among maritime industry stakeholders for adoption of bunker licensing schemes and mass flow metering systems to improve transparency and market conditions.

The other document, submitted by a group of shipping organisations, contained analysis of 2020 datasets from a bunker fuel testing company, highlighting geographical differences in relation to sulphur compliance for Very Low Sulphur Fuel Oil (VLSFO).

It was clear that there is no appetite among most Members States for making bunker licensing schemes mandatory, with several stressing it should remain voluntary. But there seemed to be growing acceptance that such licensing can improve market conditions, and a handful of countries supported mandatory licensing schemes.

In this connection, MEPC 79 encouraged Members States to make use of the revised Guidance for best practice for Member State/coastal State set out in circular *MEPC.1/Circ.884/Rev.1*; and invited interested parties to submit information on experience gained of the implementation of the guidance on best practice and relevant instruments to a future MEPC session.

IBIA made the following statement to MEPC 79:

"During discussions at the IMO about the implementation of a licensing scheme for bunker suppliers, we often hear the argument that it is entirely up to the bunker supplier to provide the right quality and quantity of fuels. We do not dispute that. But when quality-oriented bunker suppliers have to compete with companies that cut corners with little or no consequence, that is not a level playing field. That does not encourage best practices. So, if you see value in having reliable and high standard bunker supply services, we recommend implementation of a well-designed and effectively enforced licensing system."

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

FAIR BUSINESS

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

BEST PRACTICE

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

SOCIAL RESPONSIBILITY

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

TRANSPARENCY

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

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



THE BIMCO & IBIA SHIPMASTER'S BUNKERING MANUAL 2022

The Shipmaster's Bunkering Manual 2022 is the first practical industry guide for both owners and suppliers, seeking to create a common understanding of best practices when bunkering to facilitate a smoother process and safe bunkering globally

The manual is a unique result of cooperation between IBIA and BIMCO to create insight and practical understanding of bunkering across the shipping sectors.

Bunkering operations are routine, critical and high-risk operations which require accurate planning from both the owner and supplier to ensure a safe and successful operation. The publication consists of background information as well as checklists and key notes for the entire process for shipowners, masters and crew on how to prepare, execute and follow up on bunkering, including what to do when it goes wrong.

Totalling 4 chapters and phases of the bunkering process, the manual covers the following topics:



Chapter 1: Background insight on fuel types and key regulation

Everything you need know from fuel oil types, safety, and environmental regulations to ISO standards and contractual issues related to bunkering.



Chapter 3: Bunkering procedures

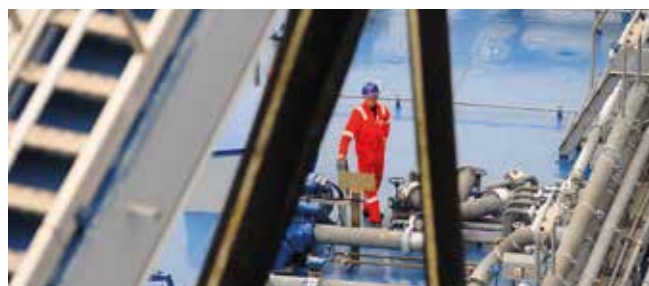
Bunker sampling is one of the most important aspects of bunkering. This chapter covers preparations, practical issues and what to do if something goes wrong. Details of the role each stakeholder ashore and on board undertakes during the process including actions required before, during and after the bunkering.

The book is available to buy from Witherbys on this link:

<https://shop.witherbys.com/shipmaster-s-bunkering-manual-2022/>

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Chapter 2: Origin and supply chain of marine bunkers

An overview of bunker blends before the ship arrives for bunkering followed by a detailed description of the ship's preparation and planning prior to bunkering. Advice is also given on how to handle a situation if compliant fuel is unavailable in a specific port. Paperwork including the bunker delivery note and certificates of quality are described and recommendations are given that aim to help to use them correctly.



Chapter 4: Calculation of bunker quantity and after completion procedures

Details on how to create a solid background for calculating the bunker quantity and determine if the ordered bunker stem has been delivered. For ships carrying equipment to undertake onboard testing of marine fuels, testing procedures are referred to and detailed description of how to interpret test results provided. Keeping an accurate and up to date oil record book is, together with the bunker delivery note, important as records for internal and external use for example during port state control.



June / July 2023

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Nigel Draffin



Consultant and IBIA Board Member

DISINTERMEDIATION IN THE BUNKER SUPPLY CHAIN

How it Failed and Ushered in New Prosperity, according to Adrian Tolson, Director and Lead Consultant, BLUE Insight and IBIA Board Member

In a series of presentations and articles from the middle of 2017, I developed the concept of “disintermediation” and how it was impacting the bunker business. The term was a new buzzword for “cutting out the middleman” that had been used to describe e-commerce practice after almost 20 years of internet websites – most famous of all the from world’s largest: Amazon. So, what happened to this momentum during the last five years when the world and bunkering has gone through, to say the least, tumultuous times? I think it was time to reflect on the fate of the “middleman” – how are our physical suppliers, traders and brokers doing in 2023?

My thesis in 2017 was that a slow growth economy coupled with a general malaise in shipping had added salt to the wounds already inflicted by the catastrophic fallout from the OW collapse in 2014. Shipowners and buyers had, prior to 2014, been increasingly supportive of the bunker trading community for at least a decade and were now seeking out more direct, safer routes to suppliers. In fact, there was no question that traded volumes were shrinking quickly: at this time down 30-40% from its 2014 peak.

General industry margins were depressed, which in combination with tight bank credit lines were squeezing out both smaller traders and physical suppliers. These mostly small and medium sized physical suppliers were being replaced, and would continue to be replaced, by global commodity traders and their subsidiary bunkering companies. In addition, we would also see return of majors and integrated refiners to the market, attracted by the potential profits of the upcoming IMO 2020 regulation. The market was in flux and the middleman’s role was on shaky ground.

My final predictions were for a post-2020 future. Questioning, whether the pendulum might swing and the process of reintermediation (yes, the opposite of disintermediation!) would set all this in reverse. Honestly, I didn’t see much hope for the brokerage community, but did see IMO 2020 as strengthening some physical suppliers. Cautiously, I also predicted a moderate sales volume comeback for bunker traders but not significantly improved margins. Volume increases because it was difficult to see anyone outside this segment being able to offer credit facilities to suppliers and buyers, or for that matter offering the breadth and depth of the market knowledge that traders possessed.

These were pessimistic times for bunkering, with the faint hope on the horizon being IMO 2020. Of course, no one in 2017 could have imagined that in our collective near future would be the shared global experience of two consecutive “black swan” events, Covid-19 and the Russian invasion of Ukraine, and the massive disruption to global oil demand, international trade supply chains, not to mention the perpetual volatility that these events unleashed. Beyond this, the bunker industry enjoyed some self-inflicted wounds in the form of damaging quality issues in 2018 in Houston and 2022 in Singapore, and let’s not forget to mention the untimely demise of Singapore’s Hin Leong and the physical supplier and trader GP Global. Pessimism had turned even darker!

And how much did the bunker industry ultimately suffer through these difficult years? Well – almost not at all – instead we saw four years of significant profits and unheard-of prosperity!

While the IMO 2020 transition was seen as a real money maker for the bunker supply chain, most of the financial benefits actually came during 2019 with seemingly random and intermittent geographical shortages of both low and high sulphur bunkers padding bottom lines. This particularly benefitted the traders who became the immediate solution provider to supply short shipowners, more so than physical suppliers although they also did well. High margins were both anticipated and looked likely to continue into 2020 until Covid’s arrival sent a shock through us all. The depression we all felt personally was quite short lived for the bunkering market – lockdowns and supply chain disruption put pressure on supplies, suppliers, and markets and by the second half of the year prices and volatility saw both traders and physical suppliers benefitting.

2021 continued the trend. Lockdowns and isolation continued for some, but after we stopped hoarding PPE and toilet paper, we started feeling sorry for ourselves, enough to buy that new Peloton bike or another case of Bordeaux. By the middle of the year, every major container port was massively congested with ships hurrying up so they could wait in line to discharge and meanwhile using more fuel!

The general feeling was, as we excited the impacts of the Omicron-variant, after all becoming more comfortable that Covid was no longer a disruptive force, that we would now face a calmer and easier 2022. That was until late February, when Russia invaded Ukraine and threw the oil markets into more turmoil. What sanity had returned was now literally blown asunder by naked aggression. Oil markets quaked and rose and fell and continued to fluctuate violently. Even the largest bunker suppliers and traders immediately worried



about credit lines and derivative margin calls, and we all braced ourselves for a bunker supply chain crisis. But it never came!

Saved by an apparent combination of sound financial and risk management, healthy post-2020 balance sheets, the cast iron nature of shipping receivables or just pure dumb luck, most suppliers and traders continued to operate and prosper. Margins exploded; profits hit record levels, buyers still with cash in the bank continued to pay their bills and 2022 simply became the greatest year in the history of bunkering – well at least from a financial point of view. And the industry recorded its fourth year in a row of good financial performance.

And how did the likely to be disintermediated of 2017 perform through all this?

Physical suppliers definitely suffered as the last decade waned, and we did see the demise of some, both big and small. Even the large bunker bankruptcies that greeted the beginning of this decade, uncovering significant financial fraud, had as their root cause a cover-up of razor thin margins with which the industry operated over many years. Physical suppliers were indeed replaced by commodity traders who forged a greater market share without suffering from the inefficiencies of some of their smaller specialist rivals. Later years have improved physical supply margins in all but the most distressed supply locations. Distortions created by quantity measurement issues continue, but overall margins have really boosted financial results.

We have seen more integrated refiners actively supplying bunkers as a result of IMO 2020, but the predicted return of the majors to bunkering never really occurred. Major oil had already decided before IMO 2020 to sell off their bunker-producing refining assets, a process that was only accelerated as the decarbonisation agenda and Covid seemed to move in lockstep. Where they continue to be highly active in bunkering, it is generally focused on alternative fuels such as LNG and biofuels.

Clearly, the major story of recent years has been the success of the bunker trading community. The reintermediation that seemed a little optimistic in 2017 has been accelerated and put on steroids by the disruptions we have seen.

On a smaller scale, bunker brokerage that appeared ill suited to survive much beyond the last decade has been able to benefit from some the disintermediation tendencies it was felt would draw business away from the traders. They have grown steadily during this period, viewed as experts in procurement, delivering more control over the buying process and at a lower cost for well capitalized shipowners not requiring financing. The evolution of this traditional brokerage model into the transparent and analytically heavy on-line digitalized brokerage is still in its infancy except for one or two notable exceptions. This is likely a big slice of the future bunker market, but it's not with us yet.

But back to the success of the bunker trading community. The first part of the last decade had seen a significant drop in bunker demand via bunker traders, and it is likely that the overall traded volume remains much the same now as it was a decade ago. Some buyers still prefer to do business directly with physical suppliers, and some physical suppliers seek out the most direct channels, sometimes via brokers. To be honest, some of the breakdown between traders' volume and physical suppliers' volumes have become a little confusing as the hybrid trader/supplier has become increasingly common in recent times.

As always in the bunker industry, we are short of solid financial information because only a handful of bunker traders or physical suppliers actually report results. But from what is available and what we can hear anecdotally, now that we are back in the bars and pubs, it is no exaggeration to say there has been an upsurge in trader margins, peaking in 2022, that were already strong during preceding years. It's also fair to say that physical business has in some cases and some locations seen similar margin improvement. What's important now, after four years of prosperity, is whether this is the new norm for the

bunker supply chain, or are we destined to see significant decline? The implications for the industry if this shift is permanent are significant.

High prices, volatility and disruption have all contributed to this positive financial state of affairs – and it is positive – but past reputation and business practice of undercapitalized suppliers, taking short cuts on quality or quantity, were not good for the longevity or reputation of the industry. If these market conditions can maintain themselves (and so far, there is every indication that they are), strongly aided by the slower moving disruption of decarbonisation and its allied disinvestment from fossil fuels, then we have a recipe for the “new and improved” bunker supply and trading industry. An industry that can afford to employ better and brighter minds, adapt to alternative fuels, invest in infrastructure and digital technologies – putting lower margins and unethical business practices in the past.

The structure of the modern bunker industry emerged in the 1970s, and for the last 50 years it has moved from being a toddler to adolescence generally exhibiting self-destructive behaviour and little maturity. Maybe, just maybe, the shock of learning how to consistently make money and the benefits of this will move it into adulthood – an optimistic view I agree but I choose to believe that the last years and the challenges of the future have shown us all a different way forward – and perhaps it's time to grow up.



Adrian Tolson, Director and Lead Consultant, BLUE Insight and IBIA Board Member



BUNKER ONE BRAZIL DONATES SCHOOL EQUIPMENT FROM RECYCLED UNIFORMS: "BEING ENVIRONMENTALLY FRIENDLY TAKES PLACE AT EVERY LEVEL."

Bunker One Brazil is dedicated to how the leading bunker supplier can contribute to moving the world towards a better tomorrow from the perspective of the maritime industry

From his new office in the cool neighborhood of Leblon, in Rio de Janeiro, Flavio Ribeiro, Managing Director of Bunker One Brazil has a plan to change how bunkering is done in the South America.

Bunker One Brazil has its roots in the Danish Group Bunker Holding A/S, who as a leading bunker supplier recognizes the importance of sustainability. As a people's business, Bunker One is constantly pushing for best practices with high quality and safety over anything else.

This also applies to aspects beyond the sea as Bunker One Brazil is currently working with successfully implementing initiatives to support the global agenda concerning climate changes. In other words; Bunker One is determined to contribute to the goal of reducing the CO₂ emission.

"It's no secret that reducing greenhouse gas emissions is a global priority, but for this mission to succeed, we must all pull

together – every market, every industry, every business, including the maritime industry," says Flavio Ribeiro.

The International Maritime Organization (IMO) has recognized this and has further presented an objective to reduce greenhouse gas emitted from the international shipping industry by no less than 50% by 2050 (in comparison with the numbers of 2008). Accordingly, the initiatives related to the ESG framework are an essential topic for the company.

As the Managing Director of Bunker One Brazil, and a board member of IBIA, Flavio Ribeiro is passionate working towards a more sustainable and eco-friendly future in his respective field. Yet, that ambition is not limited to green transition and environmental protection – it also concerns social issues such as ensuring a safe work environment and local activities such as charity and interacting with the community.

"Being environmentally friendly takes place at every level. That is why we focus on various activities – both internally and externally. And we are very proud of the steps we already have taken at this point," says Flavio Ribeiro.

But what exactly are these different initiatives, which the leading bunker supplier has launched?

Pushing for regulations within marine fuels

From a global perspective, Brazil is one of the largest producers of many agricultural commodities and some are considered to be a great feedstock for renewable fuels, like ethanol and biodiesel. Ethanol has found its place in Brazil for over 4 decades and today, most cars run on fuels mixed with ethanol derived from sugarcane and the biodiesel also has a mandatory blend in automotive transportation. But what about marine fuels? Can't this idea be implemented for this purpose too? Yes, it can.



In 2022, Bunker One commissioned the Federal University of Rio Grande do Norte (UFRN), to test the blend of biodiesel into the marine diesel oil on two of their tugboats in Rio de Janeiro.

"The findings of these tests will be donated to local regulators so the b7-b30 MDO can be created as a product and then commercially traded to the market" Flavio Ribeiro points out with reference to the need for regulations for marine fuels:

"We are also pushing for regulations as we believe they are a positive thing to the market. We cannot only hope that players will stand by best practices as we do, so a regulatory framework helps promoting a better industry," states Flavio Ribeiro, who is also the Founder and Chairman of the Brazilian Bunkering Association – ABRABUNKER.

For this reason, Bunker One Brazil is working towards gaining better regulative standards to ensure the development goes in the right direction.

Best practice ensures safe work environment

ESG activities are – as the abbreviation suggests – not only a matter of environmental matters. The abbreviation stands for Environmental, Social and Governance and is a framework focused on corporations' responsibility.

ESG activities have been a strong focus on Bunker One Brazil since before it became a (very positive) global trend. Flavio Ribeiro explains how *safety* and *best practices* are keywords to describe how Bunker One operates:

"We are a People's business meaning that we only operate with an excellent work environment and safety at the forefront of everything we do," Flavio Ribeiro states. And it is safe to say that they walk the talk. In fact, Bunker One Brazil has not experienced any work-related accidents for nearly four years.

"We are on top of it as it is in our best interest to look after our staff. We really care about the wellbeing of the employees. From the beginning, we have implemented an internal management system, which presents a set of protocols expected to be complied with. The Agency Manager makes sure that we are monitoring and controlling every aspect as well," Flavio Ribeiro explains.

Positive social impact in the community

Bunker One Brazil has made a habit to rethink how they can support various areas differently.

For instance, the company supply about 40 families in need with food baskets containing monthly provisions for a household.

Furthermore, they are now starting a project to recycle otherwise discarded uniforms into tote bags and pencil cases. Their easily recognizable crew red uniforms are thoroughly cleaned before they are handed to a cooperative of sewists, who then transform it:

"We are providing the sewists with equipment, tools, and machines to

transform the uniforms into tote bags and pencil cases. It is a great way to make great use of otherwise wasted material," says Flavio Ribeiro.

Approximately, 100 pencil cases will be donated to children in public schools per month.

"It is indeed a great way to help out in the local community and a way to bring awareness to our industry. Instead of throwing out the materials, we are, with help from the sewists, able to make great use of it for the benefit of the children in public schools," Flavio Ribeiro elucidates.

Brings attention to shipping by engaging with the local community

In 2022, it was the first time the important 'Rio Oil and Gas Conference' took place by the ocean, hence, Bunker One Brazil saw it as a great opportunity to participate.

Bunker One Brazil had a lot of visitors come by their stand, which actually was not a stand in its regular form, but BONO II, one of the company's barges, which had more than 300 visitors.

"We're happy to call attention and curiosity to our industry. The visitors on our floating stand, BONO II, seemed very interested in what we do on the shore," says Flavio Ribeiro.

Further focusing on changing how the industry thinks and approach bunkering, Bunker One Brazil will continue to progress towards bringing on suggestions for more sustainable solutions.



Flavio Ribeiro, Managing Director of Bunker One Brazil



ABB shaft generator system for CO₂ storage vessels. ©ABB

SHAFT GENERATORS FOR CARBON CARRIERS

ABB is to deliver the shaft generator system with permanent magnet technology for what are believed to be the first dedicated CO₂-storage vessels

Norway's Northern Lights carbon capture and storage (CCS) project will initially require two ships to transport captured CO₂ from industrial emitters to an onshore terminal in Øygarden, Norway. From there, the CO₂ will be delivered by pipeline to dedicated reservoirs 2,600 metres under the seabed in the North Sea for permanent storage.

The two ships will be built in China by Dalian Shipbuilding Industry Company (DSIC) and will be able to carry up to 7,500 cubic metres of liquefied CO₂ in purpose-built pressurised cargo tanks.

ABB says its permanent magnet shaft generator system will increase the fuel efficiency of these vessels, reducing emissions as a result. It adds: "Combining this technology with variable speed engines allows harvesting power for all onboard systems through the rotating force of the shaft, significantly improving performance compared to a traditional setup with fixed speed engines."

The system is driven by the main engine, enabling increased efficiencies for vessels with fewer or smaller gensets and, according to ABB, minimising both capital and operating costs. ABB claims its system weighs less and has a smaller installation footprint compared to a conventional

solution, as well as high reliability and redundancy to enable over 99% uptime, and built-in safety features to help protect crew and equipment.

Emissions estimation algorithm "exceeds 90% accuracy"

Signal Ocean group says real-world results show its emissions estimates have a high degree of accuracy. Detailed back testing of actual CO₂ emissions of about 40 tankers that have been part of the Signal Maritime pool against Signal Ocean's algorithm-based estimates is reported to have shown that real-time emission estimates are accurate within less than a 10% margin of error.

Following the implementation of IMO's MARPOL Annex VI Carbon Intensity Indicator (CII) regulation on 1 January 2023, the company asserts that accuracy is critical if owners, charterers and traders are to depend on them as a trustworthy indicator of a vessel's CII rating in 2023 and beyond.

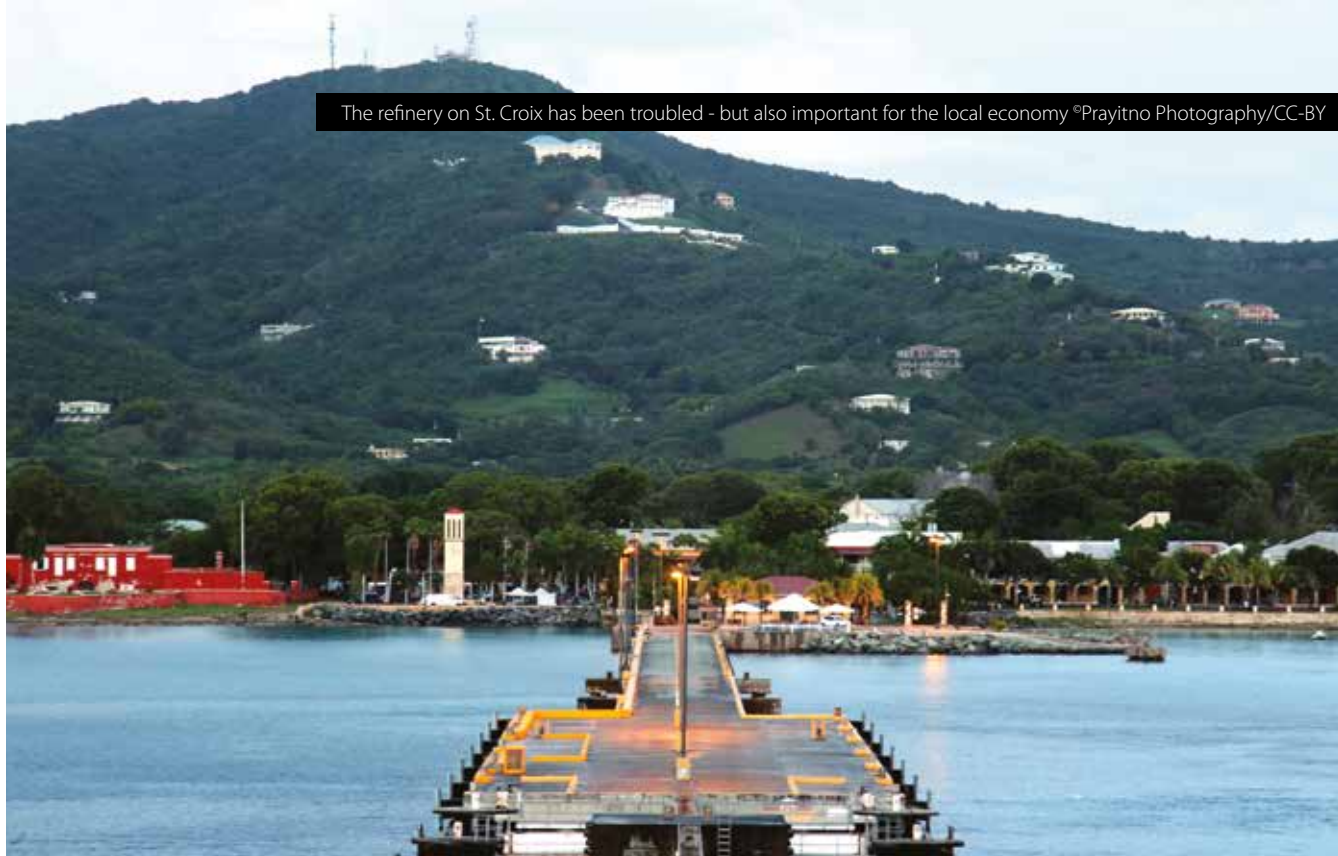
The company notes that while every vessel above 5,000 GT will have a publicly available CII rating ranging from A to E, this rating will only describe a ship's performance in the previous calendar year and not how it has performed so far this year, nor how it is likely to perform

tomorrow or for the rest of the year. Signal Ocean says its platform's vessel emission features and the Vessel Emissions API allow shipping participants to see in a simple, systematic and consistent way emissions for any proposed voyage and enable meaningful benchmarking and comparisons.

The Signal Ocean platform estimates vessel emissions, including CO₂, from AIS data converted into voyages, where all stops for bunkering operations, idle times, repairs, loads and discharge operations are taken into account. At sea, ballast and laden legs and Sulphur Emission Control Area navigation times are clearly defined. Fuel consumption is mapped to different fuel types (VLSFO, MGO, HSFO) based on the area that vessels have been trading, as well as taking into consideration a rich set of vessel particulars, including dimensions, the country built, and year built, scrubber fitting, consumption curves, operational conditions and vessel speeds.

The algorithm underpinning Signal Ocean's estimates of vessel CO₂ emissions has been verified as meeting IMO guidelines by classification society DNV.

The refinery on St. Croix has been troubled - but also important for the local economy ©Prayitno Photography/CC-BY



REFINED CHAOS

One of the most troubled and yet potentially most promising developments in Caribbean bunkering and refining has descended into soap opera levels of drama only months after its most recent sale, as John Rickards explains

The ex-Limetree Bay refinery on St. Croix in the US Virgin Islands, once the largest in the western hemisphere and a decade ago still the second largest in the US, was bought at a knockdown price of around \$60m at the start of 2022 by Jamaica-based West Indies Petroleum Ltd (WIPL) and a company called Port Hamilton Refining & Trading (PHRT). The refinery had declared bankruptcy after being forced to cease operations by the US Environment Protection Agency in 2021, following a coke pile fire and a flare rain-out that dropped oil on local homes and contaminated drinking water shortly after restart, as well as ongoing issues with atmospheric benzene and sulphide levels.

The new owners were bullish about the 50-year-old refinery's future, suggesting that despite its previous problems it would soon be back in operation, producing bunkers, naphtha and diesel in a limited "topping" mode, up to 180,000 bpd initially.

Past owner Hovensa recorded huge operational losses before shuttering it and going bankrupt. The investors behind Limetree Bay Refining (LBR), who consequently bought it in 2015,

pumped billions of dollars into making it operational again only to see that money go up in smoke. While the site has clear infrastructure challenges and the attached terminal is now a separate company, the St Croix refinery is in a solid position for bunker production. Refining capacity in the eastern Caribbean has been limited since Petrotrin's closure and the collapse of Venezuela's economy. WIPL has plenty of experience in the fuel business.

Potentially, the new era could've gone well despite the plant's age and past troubles.

In early June 2022, though, disputes with terminal operator Limetree Bay Terminals (since renamed Ocean Point Terminals) became public as LBT filed suit claiming that PHRT had fallen millions of dollars behind on payments for shared services under agreement between the two companies. This was followed at the end of the month by an extraordinary statement from WIPL saying it wasn't an owner of the refinery after all.

"West Indies Petroleum Limited wishes to clarify that contrary to media reports it is not a stakeholder in the Limetree

Bay Refinery in St. Croix in the U.S. Virgin Islands and was not the entity which purchased the refinery," the company said. "Although an initial participant in the early bidding process, due to legal factors WIPL elected not to further pursue the initiative. Those factors also constrained WIPL from commenting sooner about the inaccurate reports in the media."

This caused local uproar, and the territory's legislature called PHRT, WIPL and refinery management to give testimony and straighten out what was going on.

Speaking to the Committee on Economic Development and Agriculture in mid-July, Chambers pointed out that "while both WIPL and Port Hamilton were Purchasers under the [Asset Purchase] Agreement, the court filings specify that title to the assets and contracts is in Port Hamilton Refining and Transportation's name." He also said this arrangement was known by all parties at the bankruptcy court, and that PHRT was a special purpose vehicle set up to take over the refinery. WIPL senior VP Danville Walker agreed: "I reiterate that West Indies Petroleum Limited and Port Hamilton Refining and Transportation are two legally

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separate and distinct organisations, and West Indies Petroleum Limited has no ownership stake in the refinery."

Indeed so; the refinery's title passed *only* to PHRT under the sale order, though WIPL was a purchaser. The same order, however, also defines PHRT as "a Virgin Islands limited liability limited partnership, formed by West Indies Petroleum Limited" so you can understand that, while *legally separate and distinct*, people might think they were related. Especially given that in a January 7 2022 press release from WIPL quoting both Chambers and Walker directly, the company directly described itself as operating the refinery: "WIPL is also committed to being sensitive to environmental considerations in its operation of the facility"; "... we at WIPL hope to use the refinery to over the medium to long term..." Hard to tally all that as "inaccurate reports".

The committee certainly felt the same, with members repeatedly grilling Chambers on the ownership and shareholding of both companies. Chambers responded under questioning that some of the owners of WIPL "have an equity stake in the refinery" and the two companies had unspecified "shareholders in common". Then under further pressure, he revealed that WIPL held 42% of PHRT's shares and "I believe five" other companies the rest – without being able to name them. So, all very clear now.

Past the ownership issue, Chambers and acting refinery manager Fermin Rodriguez remained upbeat in the face of queries over the plant's environmental record. Rodriguez explained how idled refinery equipment was being maintained to support the restart, units were being inspected and cleaned of products left behind when the facility was shuttered, reaffirming that "every single piece of equipment that would be on topping operations would be inspected and reconditioned if we had to do it." The first phase of recruiting 170 staff to operate the plant would start in September 2022, he said.

Chambers added: "Our objective is to restart the refinery on St. Croix in a safe and environmentally sound manner... at 180-thousand barrels per day of

production. ... We are continuously pushing within the international investment community towards ensuring that the PHRT Refinery is restarted in the shortest possible time, by the second quarter of next year once financing is secured."

However, he also said time would not be a deciding factor; safety and environmental protection were paramount. Funding to be raised would mostly be spent on staffing ahead of the restart "as opposed to for the kit [refinery plant] itself. The kit we are convinced is an incredible piece of equipment that is ready to run". (A second "wing" of the refinery, though, he described as "obsolete".)

All very promising.

As part of PHRT's evidence and reflecting what Chambers and Rodriguez said to the committee, the company provided a July-dated copy of a teaser brochure put together by the US investment firm Jefferies to attract the \$175–200 million in funding needed to restart the plant in topping mode. The money would be needed mostly for workforce hiring and training, this type of restart would allow production within 9–12 months of capital being raised, and it would be able to happen "under existing EPA permits". The company had suggested this could be possible before, and was reiterated in Rodriguez's testimony.

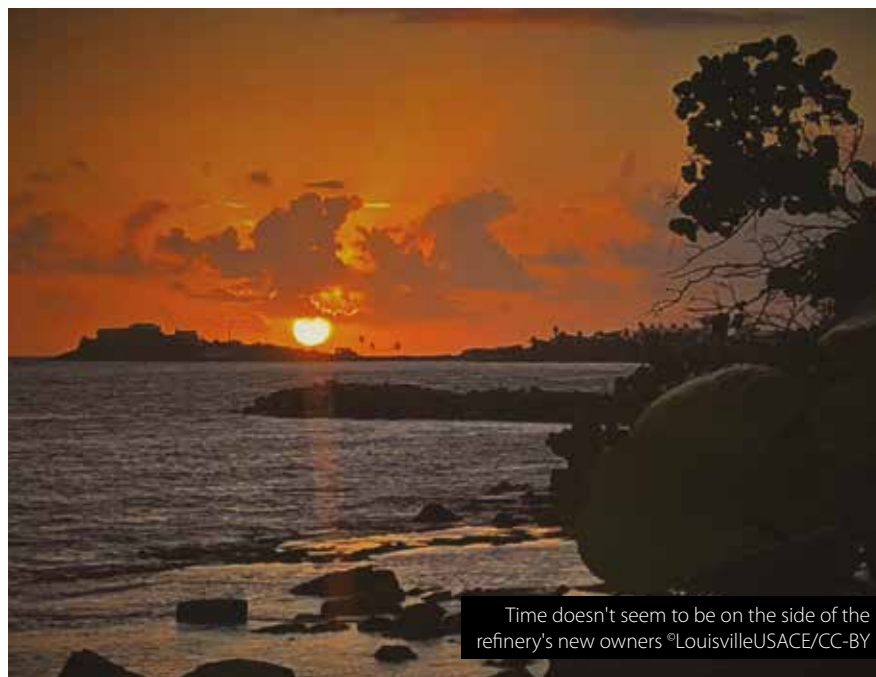
Chief among those permits is the Prevention of Significant Deterioration permit under the Clean Air Act, issued originally to Hovensa, and then transferred to LBR when it tried to restart the refinery. Without a PSD permit, the refinery can't operate – and in March, the EPA had asked PHRT for a string of information about the state and degree of changes made to the refinery to determine whether transfer would be permitted, along with a blunt, detailed list of "strong indicators" that suggested a new permit would be needed.

Since July 2022, it's all been downhill.

Three weeks after the company's committee testimony, a pile of petroleum coke was found to be smouldering at the refinery – one of the exact same issues that had ended LBR's tenure of the plant, though the coker wasn't to be used in topping configuration – and burned for two weeks before being fully extinguished.

The following month, an EPA inspection found a raft of serious problems at the refinery. The report was *damning*, detailing the disrepair, chemical and fire/explosion risk at the plant, as well as PHRT's lack of documentation and hazard assessments, and seemingly low employee numbers.

The EPA found: "Numerous examples of corrosion, including extreme corrosion and in many cases to a degree resulting in extreme deterioration (exfoliation), were



Time doesn't seem to be on the side of the refinery's new owners ©LouisvilleUSACE/CC-BY



Petrobras has trialled bio-blend bunkers on a Transpetro ship ©Divulgação Transpetro

observed on process valves, flanges, pipes, nuts/bolts, and pressure relief devices in all unit processes. Many process components appear to not have been adequately inspected or maintained for significant periods and may not be operable or at least fully operable for routine service or in an emergency... Corrosion on these process components to such a visible degree demonstrates severely compromised integrity and operability. These conditions demonstrate a risk of imminent release of extremely hazardous substances. Because of this degree of corrosion, the vessels, piping, and/or valves may fail, resulting in a catastrophic release."

After that, the consequent announcement in November that PHRT would have to apply for new permits after demonstrating the place was fit for purpose should have surprised no one, nor the agency's chemical safety order to remove anhydrous ammonia and LPG from leaking and corroded equipment as a matter of urgency.

To cap it all off, November 2022 also saw PHRT and WIPL substituted for now-defunct LBR in ongoing lawsuits, paused while the sale was concluded, launched by the EPA and US government over LBR's environmental breaches. The two companies opposed the motion, saying the suits shouldn't apply to them as new owners. In January 2023, though, a district court judge ruled that the sales order specifically offered no such protection and they'd failed to show any reason the court should reconsider. That's a further significant lawsuit to join the ongoing dispute with the terminal company.

All this at a refinery that, six months earlier, the owners suggested could be in production again this summer, seeking millions of dollars investment to do so.

World Bunkering spoke with regional EPA representative Elias Rodriguez, and while he understandably couldn't comment on ongoing procedural issues or speculate on why things had gone as they have, he

did offer some insight on how long PHRT might have to wait to get the all-clear from the agency, assuming all necessary work is carried out:

"The duration of the PSD permitting process largely depends on when a company submits a complete and approvable permit application," he said. "EPA has made it clear that the facility cannot begin to operate before a PSD permit is issued and the best available air pollution control technology is installed. The entire process could take two or three years or more. The amount of time a PSD permitting process takes varies greatly depending on the application's quality and the permit's complexity."

What this means for the refinery's future is anyone's guess, but it'd be a brave observer willing to bet on a happy ending.

PHRT did not respond to requests for comment.

Away from all the drama on St. Croix, the Americas have generally been ticking along smoothly. Annual VLSFO/HFO bunker sales in Panama rose 4% in 2022 to 4.6m tonnes and 6% for MGO to nearly 600,000 tonnes, with a shift back towards high sulphur fuel as – presumably – scrubber use increased with sharper fuel price differences. The total is the highest since 2019.

AP Moller-Maersk signed two deals late in 2022 to produce green methanol bunkers in the US for its fleet as part of its global push to supply its ships with zero-carbon fuel. One plant will

produce 100,000 tonnes of the fuel per year from 2027 in South Dakota using waste CO₂ from a bioethanol plant next door and green hydrogen, while the other, in Texas, will produce 390,000 tonnes per year from 2026 using “sustainably sourced” forestry and timber waste. The latter took the company’s full list to nine such partnerships around the world.

Petrobras, under new management following the change in Brazil’s government, has restarted bunkering from the port of Suape a decade after ending operations there, as well as launching

what it claims is the first bio-blend bunker trial in the country on a Transpetro vessel – though as with all such blends, the CO₂ reduction is comparatively low at around 7% as it only contains 10% biodiesel. Still, small steps are better than nothing. Similarly, in November LNG project development firm Nimofast Brasil announced a deal with Norway’s Kanfer Shipping to offer small- and medium-scale LNG bunkering anywhere along the coast from 2025, in part to cover gaps in the country’s shoreside LNG bunkering infrastructure. Two years is still a while to wait, but again it’s an important step in the right direction.



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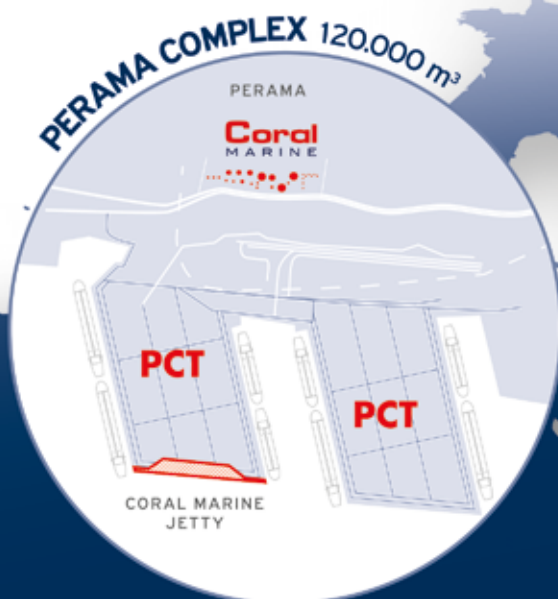
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Algeciras seems set to overtake its main rival once full-year 2022 figures come through, ©Rubén Vique/CC-BY

HIGHER STRAITS

A return to normal service has seen fierce competition between some of the great Strait rivals, while further east renewable energy projects are taking shape as John Rickards reports

Algeciras has always hoped to benefit from any drop in traffic through neighbour and rival Gibraltar, and signs are that 2022 was a good year for the Spanish port. Full-year figures weren't available at the time of writing, but across January-November, total vessel calls were up 43% on 2021 – albeit most of that increase down to the resumption of passenger and HGV traffic across the Strait to Morocco and Ceuta.

While tanker and box ship calls fell marginally and container ship size remained steady, tanker tonnage was up nearly 27%, and bunker sales rose nearly 32% year-on-year to 3.68 million tonnes. The port doesn't break down its statistics into which sector contributed what to fuel demand or how many bunkers-only calls ships made, but it seems a safe assumption that a good chunk of that bunkering increase was due to the return of normal cross-Strait vehicle and passenger traffic rather than fresh bunkering demand from cargo vessels.

The Spanish port may also have benefited from the substantial shutdown at Gibraltar in early September caused by the near-sinking of the bulk carrier OS 35, which had to be grounded on the east side of the Rock following a collision with a gas carrier. This

led to a suspension of vessel traffic and major disruption to bunkering operations while initial anti-pollution and salvage operations were carried out. Wreck removal is expected to be completed in May this year, weather allowing. September ship calls for bunkering in Gibraltar's main western port area dropped to 209 as a result, well under half 2021's September figure as well as that for August, and around half the gross tonnage of the previous month, though off port limits deliveries were less affected, and rose over the course of the year.

Overall bunker calls at Gibraltar fell just over 20% in the first 11 months of last year to 4,255, though total tonnage of ships visiting the port for any reason was up marginally. How much of that tonnage increase was due to a far busier cruise season as the industry restarted post-pandemic and how much was due to increasing size of visiting ships, especially container vessels, is unclear, and the port authority doesn't break down its figures that way. A total of 170 cruise vessels called at the Rock in those 11 months, against just 46 in 2021.

However, and while raw bunkers-only ship calls is the roughest and least accurate

yardstick for actual delivery volumes, Gibraltar is well on course at the time of writing to see the fewest annual bunker calls since the port authority began releasing statistics twelve years ago. Most estimates suggest that Algeciras will have marginally overtaken its neighbour in bunker volumes for the first time. If it does, this would make 2022 a landmark year for the Spanish port. Given how heavily Algeciras has invested and grown its bunker market in the past decade, it's a little hard to see Gibraltar making serious gains in the opposite direction as it stands.

It's also been a good year on the other side of the Strait for Tanger Med. The port authority released its annual performance figures in January, with an uptick in traffic across the board. Cargo tonnage was up 6% to nearly 108 million tonnes, with box throughput up the same amount to nearly 7.6 million TEU. Liquid bulk and ro-ro exports were up too, and after disruption caused by the pandemic and then by tensions between Morocco and Spain last year, the Marhaba – the state-facilitated return home for the summer holidays by members of the Moroccan diaspora, especially in and through Spain – returned in full, with 10% more passengers passing through the port as part of the Marhaba



operation than in 2019. All told, ship calls were up 32% on 2021 to 14,404, including 961 mega-ships over 290 metres. Tanger Med put the increase down to greater box terminal productivity and the resumption of full passenger services.

Tanger Med doesn't usually discuss bunker volumes but has marketed the port's potential as a hub in its own right for some years, and with increasing cargo traffic and normalisation of regular passenger runs to Spain it would again be very strange indeed if fuel sales weren't following suit.

It's also been a decent year in terms of more distant horizons. Spanish oil major Repsol, which has been relatively keen in the last couple of years to broaden its operations into renewable power and fuel, particularly hydrogen, inked a deal at the end of 2022 with the European Investment Bank to finance what the company says will be the first advanced biofuels plant in Spain at its facility in Cartagena. The €120m loan will support construction to begin in March this year, with completion expected within six months. The plant will produce second generation and advanced biofuels from waste products, primarily from the agri-food industry, with the more restricted advanced fuels coming from specific wastes classed as sustainable under the EU's Renewable Energy Directive (RED II). Both types in this case are intended

for maritime, aviation and long-distance transport use. Repsol says the fuels will reduce net CO₂ emissions by between 70% and 90% compared with the traditional fuels they replace. The EIB financing will also support research programs for advanced biofuels technologies conducted at Repsol's technology lab in Madrid.

The plant will process 300,000 tonnes per annum of lipidic residues for the production of up to 250,000 tonnes per year of second generation or/and advanced biofuels for the transport sector.

Speaking at the signing, Repsol's CFO, Antonio Lorenzo, said: "We are proud to be the first company in the sector to obtain this type of financing, which is a result of our commitment to execute ground-breaking projects in support of a rapid, effective and just energy transition."

The company, which already has several green hydrogen projects in the pipeline amongst billions of euros of investment in reducing its carbon output, has also joined with Naturgy and Reganosa to produce up to 30,000 tonnes of renewable hydrogen at the former Meirama thermal power plant in Cerceda, A Coruña. When first operational in 2025, the plant will operate at 30MW to produce 4,000 tonnes, scaling to full capacity over the following

years. The hydrogen will initially be used to decarbonise Repsol's local refinery processes as well as being mixed into the local gas grid, but the company includes "sustainable mobility" in its aims and also notes that plants like this will serve as proof of feasibility for wider hydrogen adoption in line with Spanish government and European aims.

Naturgy director Silvia Sanjoaquin, said that "this project will accelerate the introduction of hydrogen in sectors such as energy, industry and transport, in addition to having a great impact on the local economy, in a fair transition site such as Meirama. In Naturgy we want to be protagonists of the energy transition and hydrogen is one of the essential vectors to achieve a decarbonized economy, so we want to cover the entire value chain, from production to end use."

Also looking to make good on Spanish enthusiasm for green hydrogen is Maersk, which in November signed a collaboration deal with the government to look at the opportunities for large-scale green fuels production in the country. The protocol, the company said, could, if implemented in full, deliver "up to 2 million tonnes" of green fuels per year, and aims "to explore the feasibility on how to cover the full value chain from renewable energy sources to bunkering of vessels."

AP Moller-Maersk CEO Soren Skou said: "We are living in a climate emergency, and we need to rapidly accelerate the availability of green future fuels. We are very pleased to explore green fuel opportunities with the Spanish Government, as the country holds key characteristics to help solve this challenge with its great hydrogen ambitions and aspiring sustainability goals. At the same time, Spain encompasses significant renewable resources and is placed along key shipping routes."

The parties are reviewing production opportunities in the Andalusia and Galicia regions. Maersk says that the company alone needs approximately 6 million tonnes of green methanol per year to reach its 2030 milestone fleet emissions reduction target, and even larger amounts by 2040 for its fleet to reach net zero.



Hydrogen from Meirama will reduce plant emissions from Repsol's A Coruña refinery, ©Gregorio Puga Bailón/CC-BY

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Of more immediate concern to the Italian fuel petrochem sector as 2023 approached was the fate of Lukoil's refinery in Priolo, Sicily, once the EU embargo on seaborne Russian oil came into effect. The facility produces a fifth of all Italian refined products but had become reliant on Russia for more than 90% of its crude as lenders increasingly distanced themselves from oil firms with Russian ties in the wake of the invasion of Ukraine, and closure could've made a significant dent in Italian products supply. After weeks of talk of nationalisation and sale to a variety of possible suitors, a deal was announced in January to sell the plant to Cypriot private equity firm GOI Energy (itself backed largely by Israeli investors and headed by the CEO of Israel's Green Oil, one of the major shareholders of Bazan Group and its Haifa Bay refinery) in conjunction with Trafigura, which will handle both crude feedstock supply and refined product sales.

The sale is expected to complete in March – though at the time of writing it is still subject to agreement by the Italian government. GOI CEO Michael Bobrov said: "We are very aware of the importance of ISAB [the refinery company] for the Italian economy, for Sicily and for the local

community. We firmly believe that ISAB has important development potential and we have a solid business plan to enhance it. In close cooperation with the Italian government, we are optimistic that the operation will be successfully completed."

Adolfo Urso, Minister for Business and Made in Italy, was more measured. Speaking to the *Corriere della Sera*, he said: "The operation will have to follow the usual procedures inherent in antitrust and golden power regulations [which allow the government to veto deals affecting strategic industries] and fully respond to the requirements in terms of production, employment and environmental respect. The commitments required in terms of the conversion of the production site to green energy and its industrial revitalisation will also be important."

Rival buyers are still waiting in the wings in case the government stops the GOI sale. One way or another it looks as though the refinery should be safe, but its actual fate won't be known for certain until after this magazine goes to press.



The sale of Lukoil's Priolo refinery is subject to government agreement



These ships will be part of the world's first full-scale carbon capture and storage value chain. ©Northern Lights.

SUPPORT FOR CARBON REMOVAL

New report highlights “crucial” role of CO₂ removal in global decarbonisation

Carbon Dioxide Removal (CDR) from the atmosphere is crucial to limit global warming, in addition to rapid cuts to emissions, according to a new report headed up by the UK's Oxford University. While the report, Carbon Dioxide Removal, is not focused on the maritime industries or even on carbon capture from emission streams, it is an important acknowledgement that CO₂ can, and should, be removed from the atmosphere using technology.

More than 20 global CDR experts, led by Dr Steve Smith from Oxford's Smith School of Enterprise and the Environment, warn there is a large gap between how much CDR is needed to meet international temperature targets and how much governments are aiming to deliver. While the authors found a shortfall in policies to support CDR efforts, they report that research, innovation and public awareness around CDR are all rising fast.

The report says that, to limit global warming to 2°C or lower, we need to accelerate emissions reductions, and we also need to increase carbon removal by restoring and enhancing ecosystems and rapidly scaling up new CDR methods.

Reflecting the numerous carbon capture technologies under development and speaking in general terms, Dr Steve Smith, Executive Director of Oxford Net Zero and CO₂RE says: “Many new methods are emerging with potential. Rather than focusing on one or two options we should encourage a portfolio, so that we get to net zero quickly without over-relying on any one method.”

Meanwhile, Dr Oliver Geden of the German Institute for International and Security Affairs, asserts: “CDR is not something we could do, but something we absolutely have to do to reach the Paris Agreement temperature goal.”

At present, most current CDR comes from conventional removal methods on land - primarily via planting trees and managing soils. The report says that countries will need to maintain and expand this going forward, but warns that this is nowhere near enough.

The report finds that virtually all pathways to limiting temperature rise require new CDR technologies, such as bioenergy with carbon capture and storage (BECCS), biochar, enhanced rock weathering and direct air capture with carbon capture and

storage (DACCS). Currently, these make up only a tiny fraction of current CDR, approximately 0.1%. But, if the CDR gap is to be closed, there needs to be rapid growth of these new CDR technologies - by a factor of 1,300 on average by 2050, according to the report.

Nevertheless, the report insists that CDR is not a silver bullet and does not lessen the need for deep cuts to emissions.

Meanwhile, in a sign that the infrastructure for large scale carbon capture is starting to be developed, Japanese shipping company “K” Line and the Northern Lights joint venture have signed bare boat and time charter contracts for two 7,500 cubic metre liquefied CO₂ ships. The ships will be delivered in 2024 and will contribute to what is being described as the world's first full-scale carbon capture and storage (CCS) value chain.

CO₂ transport will be a key component to connect industrial emitters in Europe to suitable and safe CO₂ storage sites such as the one operated by Northern Lights in the North Sea. Northern Lights says it offers a ship-based solution that provides flexibility to reach emitters across Europe.

BURNING HYDROGEN

Shell and Alfa Laval in hydrogen boil-off gas project

Shell International Trading and Shipping and Alfa Laval have signed an MOU for the development of a new gas combustion unit (GCU) for use on liquid hydrogen carriers.

Under the MOU, Alfa Laval will develop a system to safely combust hydrogen boil-off gas (BOG) from a vessel's storage tank. In a statement the companies explain that, because the venting of cargo is restricted, a GCU offers a means of controlling tank pressure/temperature when the BOG poses safety risks beyond the tank's design conditions.

"Renewable hydrogen will likely be a key fuel in tomorrow's decarbonization mix, but accessibility will determine its impact," says Carl Henrikson, General Manager of Shipping Technology, Shell. "By enabling safe ocean transport of liquid hydrogen, we

can help speed up the global transition to clean energy and Shell's target to become a net-zero emissions energy business by 2050. Alfa Laval shares our ambition and is our choice of partner."

"We are proud to support Shell in developing a marine infrastructure for hydrogen," says David Jung, Business Development Manager, Alfa Laval. "Global hydrogen demand is expected to grow many times larger than it is today, and liquid hydrogen carriers at sea will be a vital link in the world's decarbonized fuel chain."

The design of the new GCU system for hydrogen will be based on the existing Alfa Laval GCU for LNG. More than 200 of these units have been installed in just over a decade, and an additional 100 units have been ordered during 2022.

The challenges in hydrogen combustion, however, are significantly greater than those involved with LNG, according to Jung who says: "With its boiling point of -253°C, hydrogen is expected to have a higher boil-off rate than methane, which will make having a GCU or similar means of BOG handling crucial on hydrogen carriers. In addition, hydrogen is light, highly flammable and easy ignitable. Safety will be paramount when transporting it on board, so there are critical safety considerations when designing the GCU system."

Alfa Laval will design and engineer the new GCU for hydrogen with the aim of receiving an approval in principle (AIP) from an IACS classification society. Once the AIP is achieved, a GCU prototype will be built for testing and type approval.

TWIN SCREW, LNG-SPLITTING VLCC

New design combines reduced light draft and pre-combustion CO₂ capture

Italian class society RINA has given Approval in Principle (AIP) for a VLCC design which incorporates an innovative propulsion arrangement that is expected to reduce the ship's resistance by 5-10%. This is achieved by splitting the thrust of a single large propeller into two smaller ones, thus reducing the required ballast draft for the full propeller immersion, which in turn allows the reduction of the volume of the ballast tanks and, ultimately, of the overall ship dimensions and the required power for propulsion without impacting the cargo carrying capacity.

At the same time, according to RINA, the vessel will meet the IMO GHG reduction targets for 2050 through the use of the ship's LNG fuel combined with hydrogen produced onboard. The LNG/hydrogen-fuelled vessel general arrangement developed by Shanghai Waigaoqiao Shipbuilding (SWS) is based on the result of a joint project with Marin, the Liberia Administration, Wärtsilä, ABB, Metacon subsidiary Helbio and RINA.

RINA's Executive Vice President, Giosuè Vezzuto, said: "Following the AIP of an MR tanker, earlier this year, using the same solution to produce hydrogen on board, this vessel features a new approach to the design of VLCCs. It also demonstrates that the gas reforming concept can work equally well on smaller or bigger vessels, as this first AIP for a VLCC proves its application in the largest vessels."

The propulsion design 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. The capture of carbon atom directly from the LNG molecules, serves as a pre-combustion technique, and the cryogenic separation of CO₂ from a stream of reformed gases rather than from exhaust emissions results in much smaller installation on board which eliminates the use of chemicals and the penalty in energy consumption.

"One of the challenges for shipowners in meeting IMO carbon emission targets is knowing what the future holds," continued Vezzuto. "The industry is considering many options using different technologies and new fuels, aiming to minimize the energy consumption and the resulting CO₂ emissions on board. Shipowners need to be confident that onshore bunkering facilities and other supporting infrastructure will be available before investing in new vessels. This LNG/hydrogen fuelled design for VLCCs is modular and scalable and provides a practical solution that can adapt over time to meet increasingly stringent emission reduction targets and ensure their investment is optimized throughout the natural lifespan of the vessel. The design only requires LNG bunkering, which is widely available today."



ENVIRONMENTAL NEWS

Our regular round-up of shipping's 'green scene'

Intercargo backs IMO levy proposal

In a statement, bulk carrier owner association Intercargo says it supports the International Chamber of Shipping (ICS) proposal at IMO that a flat rate per tonne of CO₂ emitted on a Tank-to-Wake (TtW) basis should be levied on bunker fuel. It says that, subject to the outcome of the ongoing discussions at IMO on fuel emissions' Life-Cycle Assessment (LCA), the levy should be combined with an International Maritime Sustainability Funding and Reward (IMSF&R) mechanism where ships of 5,000 GT and above will make an annual contribution per tonne of CO₂.

It stresses that, under such a scheme, only ships that use 'eligible alternative fuels' would receive a reward for CO₂ emissions prevented. The association says that it continues to fully support the ambition to achieve net zero emission shipping by 2050. It says its position is that a combination of core elements of previous proposals on medium-term measures is the best way forward, and therefore welcomes the ICS revised proposal, put forward last September.

It adds: "It is important to stress, however, that this goal can only be achieved by providing the shipping industry with alternative zero carbon fuels. The responsibility for decarbonisation cannot be placed solely on the shoulders of the ship operator at the end of the line – it is a challenge that must be dealt with holistically by the entire shipping industry."

Intercargo adds: "It is essential that appropriate policies are included in the revision of the IMO GHG Strategy to ensure that green fuels are secured as well as the necessary infrastructure to ensure availability and bunkering in ports around the world. Unfortunately, these aspects are not sufficiently discussed and addressed despite their critical role."

It says that a combination of technical and economic measures should be accompanied by appropriate policies and commitments from the IMO member states, in order for fuel suppliers to secure the required alternative fuels in ports around the world in sufficient quantities.

WSC asks EU for "clear performance standards"

In an open letter to decision-makers in Brussels, the World Shipping Council (WSC) together with Danish Shipping and the Methanol Institute, urge decision-makers

to reach an agreement on the pending FuelEU Maritime legislative package that will help reduce shipping GHG emissions.

The liner shipping body asserts that the liner sector, including container and vehicle carriers, are leading decarbonisation investment in new fleets that are ready for alternative fuels that reduce GHGs. It says: "Future-ready fleets will be demanding more and more green fuels with lower GHG intensity to ensure that we meet decarbonisation targets. Increasing demand for fuels that reduce GHGs is the main idea of the FuelEU Maritime, which is in the final stages of negotiation in the political system in Brussels. To ensure that the future rules will sufficiently take first movers into account, WSC together with Danish Shipping and the Methanol Institute urge decision-makers to negotiate clear performance standards that ensure the uptake of renewably produced marine fuels that substantially reduce GHGs."





"FuelEU Maritime is perhaps the most important of the EU legislations for shipping. Using performance-based targets with quantitative rigour based on lifecycle or Well-to-Wake metrics, FuelEU provides shipping companies the clarity needed for continued first mover innovation that will expand to broad uptake of renewable fuels across the fleets carrying essential cargoes to EU communities," says Jim Corbett, Environmental Director for Europe at the WSC.

WSC notes: "To further accelerate the uptake of the greenest fuels, the trilogue partners (representatives of the EU Parliament, Council and Commission) are negotiating whether to apply a 'multiplier' for renewable fuels of non-biological origin (RFNBOs or e-fuels). Multipliers reward the use of new fuels in a phase-in period to accelerate shipping's decarbonisation transition and promote the development of new e-fuels. This will increase demand of the new e-fuels and thus stimulate the production of new fuels and make them more accessible."

Corbett adds: "We support aggressive and achievable performance standards, including the use of performance multipliers, to ensure the best and most innovative development of practical pathways to renewable marine fuels."

LR's Zero Ready Framework

Lloyd's Register (LR) has launched a five-level framework for assessing the actual readiness of a vessel for the transition to zero carbon fuels. Published by LR's Maritime Decarbonisation Hub, *Zero Ready Framework – helping to ensure shipping can deliver our zero-emissions future*, ranks vessel readiness for zero carbon fuel operations from 1 (highest level of readiness) to 5 (lowest level of readiness), and measured on a well-to-wake basis. LR says that the framework has been developed through cross-industry consultation through a series of workshops with industry stakeholders.

According to LR, it has been created to offer clarity around the term 'readiness' which is used in multiple ways across the shipping industry. The rankings were developed based on observations that

some shipowners have had a design for conversion to zero carbon fuel done as a paper exercise, without a plan for how the conversion would be carried out. Others have some or all the required equipment (for example: engine, tank, pipework, fuel management system) already installed. Another group of vessels have a dual fuel engine that could run on a zero-carbon fuel but may require an engine retrofit to do so.

An assessment of a container ship route in Southeast Asia by the LR Maritime Decarbonisation Hub found that, despite the pushing forward of new initiatives by financiers, insurers and ship charterers to achieve zero emissions, 27% to 30% of vessels newly built between 2022 and 2050 will still require conversion to a different fuel in order to meet zero targets.

Charles Haskell, Director, LR Maritime Decarbonisation Hub, says: "As ships built today will still be in service in the 2040s, it's essential for shipowners to understand the full implications of actual vessel 'readiness' for zero carbon fuels to meet the industry's 2050 decarbonisation targets. These differing standards and classifications of 'readiness' across the industry have made it difficult for owners to conduct a transparent assessment of their vessels' commercial prospects in a zero-emissions future."

He adds: "In view of the significant structural and technical complexities of vessel conversion, we developed the 'Zero Ready Framework' to help investors, charterers, insurers and prospective shipowners better understand and assess the risks and conversion costs of both existing and newly built fleets."

Andrew Keevil, Strategy Development Manager for LR Maritime Decarbonisation Hub and lead author of the framework, comments: "Until now, we have found that current regulations have focused on near-term improvements in vessel energy efficiency and GHG emissions, but have yet to address the longer-term goal of vessel readiness for zero carbon fuels. We designed the 'Zero Ready Framework' to accommodate the spectrum of vessel capabilities in both the fleet and the

order book. We hope that the industry adopts these readiness levels, thus creating a common understanding of where ships are today on the journey to zero. By committing to a clearly defined readiness standard by a specified date, shipowners are better able to factor climate risks into their business plans and demonstrate climate action to both their customers and stakeholders."



Xeneta CEO and Co-founder
Patrik Berglund "Xeneta"

Benchmarking boxship emissions

Ocean and air freight rate benchmarking and market analytics platform Xeneta and information analysis services provider Marine Benchmark have launched their Carbon Emissions Index (CEI) for the container shipping market. The CEI is said to be a first-of-its-kind data solution that tracks and compares the carbon emissions of ocean carriers across 13 main global trade lanes.

The data is based on vessel information from a carrier's actual sailings—sourced through AIS tracking by Marine Benchmark—and includes changes in speed, cargo load, time steaming and congestion shown by time spent at anchorages. The CEI is therefore said to be the only factual, timely and independent (with zero input from carriers) reference tool based on actual utilization available in the market.

"Transparency is the key to unlocking enhanced value, business performance and trust in the ocean freight segment – and environmental standards are a key part of that," commented Xeneta CEO

and Co-founder Patrik Berglund. "This unique data set supports what Xeneta has already achieved in the rates arena; shining a spotlight of truth on carrier carbon emissions and assisting our customers as they push towards more sustainable freight buying and selling processes."

Singapore's call for low or zero-carbon power generation and bunkering solutions

Singapore's National Hydrogen Strategy, launched last year, included Singapore experimenting with the use of advanced hydrogen technologies that are on the cusp of commercial readiness. Supporting this strategy, the Energy Market Authority (EMA) and the Maritime and Port Authority of Singapore (MPA) are inviting interested parties to submit proposals under an Expression of Interest (EOI) to build, own and operate low or zero-carbon power generation and bunkering solutions in Jurong Island, Singapore.

An MPA statement asserts that low or zero-carbon hydrogen has the potential to support Singapore's decarbonisation efforts and achieve net zero emissions by 2050. It says: "The EOI will enable us to explore the use of low or zero-carbon fuels such as hydrogen and ammonia for power generation, alongside other low-carbon alternatives such as electricity imports and domestic renewable energy sources. Low or zero-carbon ammonia may also have multiple end-use pathways for power generation and bunkering. Beyond the power and maritime sectors, low or zero-carbon hydrogen and ammonia are also promising decarbonisation pathways for our energy, chemicals and aviation sectors."

The MPA notes: "Due to its low energy density, hydrogen gas needs to be liquefied, compressed or converted into a hydrogen carrier for transport and storage. Ammonia is currently one of the most technologically ready hydrogen carriers with an established international supply chain for industrial use. The EOI will enable Singapore to assess the viability of such projects, and support the development of the safety standards, regulations and ecosystem needed."

MPA Chief Executive Teo Eng Dih says: "Close collaboration between the public and private sector is critical to accelerate decarbonisation in the maritime industry. MPA hopes to partner those who are committed to building up the global supply chain for low or zero-carbon fuels, including ammonia, with Singapore as a key bunkering hub."

UK "needs £75 billion to decarbonise domestic shipping"

A report produced by Marine Capital, with the support of UMAS and Lloyd's Register (LR), estimates that approximately £75 billion (US\$90 billion) of investment over the coming three decades will be required for the UK's domestic maritime sector to achieve net zero. Attracting new sources of capital will, it says, be key to the industry's energy transition.

The report, *UK Domestic Shipping: Mobilising Investment in Net Zero*, identifies funding mechanisms that Marine Capital says can be applied immediately to unlock untapped investment capital to finance this transition, without waiting for the introduction of carbon pricing or the selection of a 'winning' zero emission fuel solution.

The report is said to be the most comprehensive study to date of the UK domestic maritime sector. Its findings and recommendations are intended to contribute significantly to the next iteration of the UK government's Clean Maritime Plan.

The complexity of the UK's domestic maritime sector, with its diverse range of stakeholders, vessels and ports presents significant challenges to achieving net zero. The study identifies the vessels which comprise the UK domestic and short-sea shipping fleets and provides a profile of these fleets, including a breakdown of emissions by different vessel types. This analysis shows that the largest source of emissions come from a relatively small sub-sector of vessels, providing the potential for targeted measures.

Both investment and clear, coordinated policy support will be required to overcome the various barriers

that currently hinder the sector's decarbonisation transition. These barriers include uncertainty regarding future demand for and supply of clean fuels, lack of clarity over the evolution of the policy and regulatory environment and limited access to funding by many stakeholders. Identifying areas of priority will be key to the sector's successful navigation of the net zero pathway over the coming two decades.

Institutional investors, who together represent over \$80 trillion in assets, could be a viable source of funding. However, government support will be needed to help them overcome some of the hurdles currently impeding their participation.

Through the use of case studies, the report considers how institutional capital can be unlocked at scale through different types of funding mechanisms and the appropriate supporting government policy. The case studies highlight particular areas which are appropriate for priority attention. Ferries and Ro-Ro vessels, which account for 10% of vessels but 50% of emissions from the domestic and short sea fleets are one such area, as are offshore service vessels. Given the UK's planned expansion in offshore wind projects, vessels which service this market are also seen as being good candidates for targeted measures.

Israeli sulphur limits

Vessels calling at Israeli ports will need to burn marine fuels with a 0.10% maximum sulphur content under new regulations that come into force on 23 February, 2023. The Mediterranean Sea Emission Control Area (ECA) for Sulphur Oxides and Particulate Matter was recently adopted at IMO and will impose the same limit throughout the Mediterranean, but it will not take effect until 2025.

Mutual liability insurer North P&I notes that Israel, in enacting the new regulations, will put in place measures similar to the EU directive for ships at berth. Accordingly, the limit for sulphur in fuel oil used on board ships while in all Israeli ports and/or designated anchorage areas should be not more than 0.10% mass by mass (m/m).



The 12,000 cbm Seapeak Vision, due to join Titan's fleet in March 2023. ©Titan

INDUSTRY NEWS

Latest developments from around the global marine fuel sector

"1 million tonnes of fuel a year are off spec," LR

More than one million tonnes of off-specification or non-compliant fuels are detected each year, costing ship operators between \$27,000-\$50,000 per incident, according to estimates in a new Lloyd's Register (LR) report, *Testing Times – The vital role of ship fuel oil assessment and quantity verification in an uncertain era*.

Published in collaboration with marine innovation consultancy Thetius, the wide-ranging report highlights why the introduction of biofuel oils, growing prevalence of bunker licensing schemes along with upcoming changes to ISO standards for marine grade fuels, make it more vital than ever for ship operators to receive the correct advice and oversight on bunker procurement and refuelling operations.

The study concludes that macroeconomic and geopolitical influences such as Russian military aggression in Ukraine, the commercial pressures felt by a shipping industry that is obliged to adapt to a disorientating period of change and development, the ever-present spectre of fraud and corruption, lack of supply chain transparency, the unequal

enforcement of emerging fuel standards, and of course - climate change, conspire to make the market prone to serious issues. It argues: "When evidence shows that in excess of one million tonnes of off-spec or non-compliant fuels are detected each year, the cost to industry is considerable, with the bill to the unwary ship operator estimated at US\$27,000 to US\$50,000 per event. By comparison, the cost of testing and verification services is attractive, but the benefits are not just financial. Strong evidence suggests that operators need reliable support in bunkering disputes and independent testing and verification is the only way of being truly supported."

Dan-Bunkering hit by Allseas Global Project Logistics collapse

Major Denmark-based global bunker supplier Dan-Bunkering is reportedly owed £4 million (US\$4.8 million) by UK Container Line Allseas Global Project Logistics which is now in administration. ElbOil UK Ltd and Alpha Trading are also listed among 35 creditors of the company. The company became insolvent late last year. Its shipping line was only launched in mid-2022, using chartered multi-purpose tonnage to operate a China-UK service. According to industry analyst Alphaliner,

the division owes £34 million to creditors and also £2 million to other parts of the Allseas Group.

Meanwhile, following the commercial merger of the company's three European units, Dan-Bunkering has announced the appointment of Hans Lind Døllerup as Managing Director and Michel Dominique Thomsen as Commercial Director of Dan-Bunkering Europe.

Titan charts LNG tankers for bunkering

Low and zero-emission fuels supplier Titan has acquired two small scale LNG carriers, the *Seapeak Unikum* and *Seapeak Vision*, from Seapeak, the Canadian gas transportation company formerly known as Teekay LNG Partners. Titan says that the vessels will be retrofitted to ensure suitable LNG bunkering capabilities, enabling them to both transport and bunker LNG, liquefied biomethane (LBM), and in the longer-term hydrogen derived e-methane (e-LNG).

Both sister vessels have a cargo capacity of 12,000 cubic metres. They will join Titan's fleet in March this year and will operate in the Mediterranean and Northwestern Europe, where they will cater for increased



demand for LNG and bio-LNG in these regions.

The vessels and the retrofit are financed by Sole Shipping Group through a long-term bareboat charter leasing structure. Sole Shipping Group is a major European provider of financial leasing structures. Titan was advised on this transaction by Endegeest Consulting.

Titan's expanding fleet already includes a mix of owned and chartered vessels, and it has a newbuild programme comprising the *Titan Krios* and *Titan Hyperion* designs. The company says the two new additions to the fleet allow it to deliver fuel to a wider range of LNG-powered vessels, including all container ships.

"Key player" in Singapore MGO theft gets 16 years jail

A key player in what the prosecution described as the largest and most sophisticated marine gas oil theft in Singapore's history gained at least S\$1.4 million from his crimes, the *Straits Times* has reported. Tiah Kok Hwee, who worked for Shell, was sentenced to 16 years and four months' jail in January after pleading guilty to 20 counts of criminal breach of trust involving nearly S\$94 million (US\$69 million).

He also admitted to four counts of dealing with the benefits of criminal conduct involving more than S\$4.2 million. Another 28 charges were considered during sentencing. The court was told that Tiah was not one of the masterminds behind the offences but he played an important role within the conspiracy, "being an experienced employee who could carry out both fieldwork and panel work in furtherance of the scheme".

India to impose age limit on bunker barges

India's government is set to impose age restrictions on all ships handling Indian cargo as well as on the ownership of older ships, according to reports. Indian owners would be banned from buying and registering any ship, other than passenger vessels, over 20 years of age and would have to dispose of any ship older than 25 years. It is understood that the restrictions would apply to bunker barges.

"There is a need for review and to specify certain requirements to enable registration/operation of quality tonnage under the Indian flag," the country's Directorate General of Shipping has explained.

Axiom Global achieves QMS certification

Bunker supply and oil trading company Axiom Global says it has achieved Quality Management System standard ISO:9001:2015 certification which covers trading of marine fuel and related products. The process was managed and completed by classification society DNV.

Praveen Jaiswal, CEO and Managing Director of Axiom Global, said: "Building strong trust levels with our customers has always been our top priority. The recent achievement of the ISO 9001:2015 Certification demonstrates our commitment to our quality management policies. We will continue our efforts towards keeping up to speed with the industry requirements and aim to raise our customer service levels."

The company has offices in the UAE, India and Singapore and is active across the Indian sub-continent, Middle East and other ports. Established in 2019, Axiom Global is also a registered bunker supplier in India and is licensed by the Directorate General of Shipping.

IME expands fleet

UAE-based licensed bunker supplier of petroleum products, International

Marine & Energy (IME), has added three new barges to its fleet. The company has operated in UAE's maritime industry for over a decade through the trading and physical supply of fuel.

Since receiving its license to supply bunkering products in 2020, IME has been operating three barges within the UAE territory, focused on Sharjah and Khorfakkan. Now an additional three barges are operational.

IME founder Ali Fathi says: "Our strategic expansion, including the addition of three new barges, builds on our market credibility as a trusted and fully licensed supplier of petroleum products. Securing the license was a testament to our commitment to providing quality fuel services and our focus on ensuring the highest maritime safety standards. As a home-grown UAE company, we will continue to contribute towards the nation's reputation as a trusted global bunkering hub, given that nearly 90 percent of goods traded globally are carried across our oceans."

With the addition of the new barges, IME says that it will continue to work closely with local and international authorities and stakeholders to deliver tailored solutions that meet any supply challenge and is also focused on driving conversations around regulatory frameworks, credit and risk management, health and safety, and the development of future fuels.



Singapore's courts have come down heavily on MGO theft perpetrators ©istock

COPING WITH EEXI & CII

A key part of IMO's greenhouse gas emissions reduction strategy has come into force but its implementation has been the subject of controversy and uncertainty

Amendments to the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI entered into force on 1 November 2022. Developed under the framework of the Initial IMO Strategy on Reduction of GHG Emissions from Ships agreed in 2018, these technical and operational amendments require existing ships to improve their energy efficiency in the short term and thereby reduce their greenhouse gas emissions.

From 1 January 2023, it has been mandatory for all ships of 400 gross tonnage and above to calculate their attained Energy Efficiency Existing Ship Index (EEXI) to measure their energy efficiency and, for ships of 5,000 gross tonnage and above, to start collecting data for the reporting of their annual operational carbon intensity indicator (CII) and CII rating.

In the run-up to the in-force date there was considerable discussion in shipping and, especially, ship chartering circles about the practical implications of the new regime.

A new BIMCO charter party written to allow for the requirements of CII has been controversial, while bulk carrier owners have made clear their objections to CII as a medium- or long-term means to move towards decarbonisation. On the other hand, many organisations and companies have been working flat out to help ship operators comply with EEXI and CII.

The IMO states on its website: "As a stimulus to reduce carbon intensity of all ships by 40% by 2030 compared to 2008 baseline, ships are required to calculate two ratings: their attained Energy Efficiency Existing Ship Index (EEXI) to determine their energy efficiency, and their annual operational Carbon Intensity Indicator (CII) and associated CII rating. Carbon intensity links the GHG emissions to the amount of cargo carried over distance travelled."

A ship's attained EEXI indicates its energy efficiency compared to a baseline. Attained EEXI will then be compared to a required EEXI which differs by ship type and size. The calculated attained EEXI value for each individual ship must be below the required EEXI.

The CII determines the annual reduction factor needed to ensure continuous improvement of a ship's operational carbon

intensity within a specific rating level. The actual annual operational CII achieved must be documented and verified against the required annual operational CII. This enables the operational carbon intensity rating to be determined.

Based on a ship's CII, its carbon intensity will be rated A, B, C, D or E (where A is the best). The performance level will be recorded in a Statement of Compliance to be further elaborated in the ship's Ship Energy Efficiency Management Plan (SEEMP). Ships rated D for three consecutive years, or E for one year, will have to submit a corrective action plan to show how the required index of C or above will be achieved. IMO states: "Administrations, port authorities and other stakeholders as appropriate, are encouraged to provide incentives to ships rated as A or B."

According to IMO: "A ship can run on a low-carbon fuel clearly to get a higher rating than one running on fossil fuel, but there are many things a ship can do to improve its rating, for instance through measures, such as: hull cleaning to reduce drag; speed and routing optimisation; installation of low energy light bulbs; and installation of solar/wind auxiliary power for accommodation services."

The Initial IMO Strategy for Reduction of GHG Emissions from Ships sets out candidate short- mid- and long-term measures. The introduction of EEXI and CII measures falls under the strategy's short-term measures which commit IMO to a target of reducing carbon intensity of international shipping by 40% by 2030, compared to 2008.

"CII will not achieve decarbonisation goals"

Bulk carrier owners' association Intercargo believes that the current CII framework should not be used as a benchmark for IMO's medium-term measures.

It states that, at a recent meeting, its members asserted that "CII cannot be used to achieve the desired decarbonisation goals as under real life operating conditions it will not deliver equitable, transparent and non-distorting emissions' reductions".

Intercargo notes: "A number of factors can have a significant adverse impact on a vessel's CII rating, most of which are outside the vessel's control. Examples include adverse weather, voyage distance,

port waiting times, port infrastructure, and charterers orders. Paradoxically when considering voyage distances and port waiting times, vessels with longer travel distances can produce more emissions but have a better CII rating when compared to vessels travelling shorter distances and producing less emissions."

The association concludes: "Intercargo does not therefore believe that CII, in the current format, would achieve the desired decarbonisation goals or targets. While generally supportive of the operational short-term measure, there are significant flaws that need to be addressed in order to make CII fit for purpose."

BIMCO "continues to seek solutions"

The BIMCO CII clause has been developed to help address the commercial complexities of the CII regulation entering into force on 1 January 2023, BIMCO said in a statement late last year. The organisation noted that the regulation was adopted at the IMO despite attempts by the industry to point out the potential pitfalls of the CII formula.

"We have received constructive comments, both positive and negative, from many of our members. This insight is invaluable for already published clauses and the development of future clauses. We will continue to seek solutions to help our members operate commercially in a complex regulatory environment," said David Loosley, BIMCO's Secretary General & CEO.

BIMCO accepted that "many stakeholders are still struggling to interpret the complexities of the CII regulation". It said it was offering comprehensive training along with free webinars to explain how the clause works in practice and how to understand the CII regulation.

In early January BIMCO published advice to shipowners on its website. It notes: "The new mandatory part III of the SEEMP includes an implementation plan documenting how the required annual operational CII will be achieved for the next 3 years. The plan contains measures and actions the ship will take in this regard, and requires monitoring and follow up by the company (ISM company of the ship). The plan shall be approved by the Administration and should be applied."

It advises: "Compliance with the regulation further entails application of the



implementation plan. This literally means that what is in the approved plan must be done. If the plan contains elements/measures which cannot be applied for one or another reason, the plan should be amended and reapproved for it to be implementable.”

As well as promoting the use of its new CII clause BIMCO has the following advice on charter parties: “With regard to commercial agreements such as time charter parties, it should be carefully evaluated in each case how ships subject to the above MARPOL requirements can maintain compliance. The implementation plan in the SEEMP is an important part, and as a minimum the charterer should allow its application under the terms of the charter party. We do not recommend that owners agree to clauses, which may limit owners’ ability to fully comply with the mandatory elements of the SEEMP.”

It adds: “To avoid unnecessary disputes and discussions at a later point, we encourage this topic to be clearly addressed during negotiations of charter party terms to allow owners’ compliance with regulations.”

Legal scrutiny

Unsurprisingly, the new BIMCO clause has been closely scrutinised by maritime lawyers. Watson Farley & Williams LLP (WFW) issued a series of papers on CII in the run-up to implementation. The firm notes: “The Clause provides a base from which the parties can begin to agree practical steps towards compliance with CII. In addition to having obligations to cooperate and work together in good faith with a view to sharing best practice on how to achieve the best possible operational efficiency on the vessel, the parties also have duties to collect and share quality data on the vessel CII performance. The Clause also offers a contractual mechanism for the parties to activate if and when the emissions data shows that the vessel’s CII rating is falling.”

It observes: “The clause provides a means for the parties to work together to prepare a written plan that would help meet CII. However the Clause does not, and perhaps cannot, guarantee that the parties will agree a written plan that would actually work. Nor does it provide a path for the parties to follow if the plan fails to deliver the Agreed CII rating within a specified period.”

The law firm comments: “The clause assigns the burden of complying to the charterers on the basis that the charterers have day-to-day control of the vessel during the charter party

period and, in most cases, make decisions in relation to choice of fuel, route and speed. However, whilst provision is included for the owners to claim damages arising out of charterers’ breach of the clause, it’s clear that regulatory responsibility for compliance is not passed on in the clause. Perhaps constrained by its underlying purpose to be fair and balanced, it does not go as far as to avail the owners of all responsibility for CII. Ultimately, the owners would still be the responsible party under the regulations because in the event of any enforcement action, prosecution and fines the regulators would take action against the owners rather than the charterers. On top of this and similar to the regulations themselves, the clause is silent on the critical question of who will pay for CII and the potentially far-reaching consequences of any operational changes that would have to be made to maintain a compliant CII rating.”

WFW is not optimistic that charters will accept the use of the clause, noting: “There seems little incentive for any charterers to agree to the Clause in full because it requires considerable interference with their freedom to operate the vessel as it deemed necessary to meet commercial needs and deadlines. Whilst charterers may find data monitoring and data sharing requirements commercially acceptable, they are less likely to agree to making any operational changes, especially in instances where the voyages are 18 months or less, or where their trading route would be somehow limited or interrupted.”

WFW concludes: “It remains to be seen how and if the CII conundrum can be resolved. Given that there is unlikely to be an abundance of highly performing, C or above rated vessels, most owners will be chartering borderline or poorly performing vessels and looking for solutions and contractual mechanisms that control and improve the operational efficiency of the same. With this in mind, we would strongly advise both parties to work together to agree commercially workable ways forward and preferably bespoke CII clauses that meet their specific needs and requirements. There is perhaps one consoling fact in all this, namely, that everyone will be ‘in the same boat’, rowing through the same fog that is CII, until such time that it is reviewed and hopefully reformed come 2026.”

Practical solutions

While key players in the maritime industries have concerns over the commercial complications and unforeseen consequences of the new regulation, many organisations

have been preparing products that will help ship operators comply.

Columbia Shipmanagement (CSM) says shipowners and charterers using its newly-released Emissions and Engine Health Monitoring System, via CSM’s Performance Optimisation Control Room (POCR), will be aligned with BIMCO’s CII clause for Time Charter Parties designed to help the industry commercially navigate the complexities of the IMO’s CII regulations.

CSM’s Group Director Digital Performance Optimisation, Capt. Pankaj Sharma said: “With the recent introduction of the BIMCO CII operation clause addition, the need to use continuous CII monitoring systems as well as an engine health monitoring system are fully covered through our emissions monitoring addition and PANGIA-Engine Monitoring System,” he said.

According to Capt. Sharma the CII should be measured and assessed on a continuous basis and trends identified proactively rather than depending on end-of-year results. “Shipowners should use CII projection to predict resultant CII and have early discussions with their charterers. It is important they ensure their engines are in good working health and are advised to invest in an engine health monitoring system such as the one used in the POCR, for record keeping and evidence. The crew should also be fully trained for sensitivity and impact of CII reporting and management,” he said.

Meanwhile, AI-powered sustainable shipping specialist Bearing and maritime software company Veson Nautical have launched a product partnership to “synchronise data for voyage analysis and quick, accurate modelling of CII ratings. The two companies say they will “securely integrate” the Veson IMOS Platform (VIP) with Bearing’s CII optimization and performance analysis solutions.

Eric Christofferson, Chief Product Officer at Veson Nautical, said: “Optimising a voyage involves several inputs and assumptions. Currently, planning and recording a voyage in a system like VIP provides a user with a number of modelled outcomes from a commercial perspective. When you bring a separate optimisation system into the mix, things can get time-consuming and error-prone. Additionally, upcoming regulations are putting a lot of pressure on the industry to maintain compliance and enhance efficiencies of global supply chains.”

MANDATORY MEASURING FOR ARA PORTS

Authorities for Rotterdam, Antwerp and Zeebrugge and plan to make the bunker market “more reliable” in move welcomed by IBIA

Antwerp-Bruges Port Authority and Port of Rotterdam Authority have announced that they will mandate the use a bunker measuring system, such as a mass flow meter (MFM), “on board bunker vessels to measure the exact amount of fuel delivered to sea-going vessels”.

According to the two port authorities, the move follows an independent study in both Rotterdam, Antwerp and Zeebrugge which showed regular quantity issues in the bunker market. With the measure, the port authorities say they aim to make the ARA bunker market more transparent, efficient and reliable.

During the first half of 2023 the port authorities intend to identify suitable bunker measuring systems. They will also determine the date on which the “obligation to bunker with a bunker measuring system on board bunkering vessels” will enter into force in Antwerp and Zeebrugge as well as Rotterdam.

A joint statement says: “The port authorities are aware that this measure will have a major impact on the bunker market. Therefore, they choose an ambitious yet realistic deadline. The different companies in the bunker chain will be given sufficient time to adapt to this measure. The requirement will be included in the licence for bunker fuel suppliers. Currently, 40 out of 170 bunker vessels in Rotterdam, Antwerp and Zeebrugge are equipped with a bunker measuring system. The introduction of a bunker measuring system will greatly improve efficiency. After all, data from transactions can be read digitally and immediately processed in the accounts.”

IBIA has issued a statement welcoming the decision and calling for more ports to follow suit. It says: “Port authorities have taken an important step toward improving transparency and reliability in the ARA bunker market by agreeing to mandate the use of a bunker measuring system (BMS) for bunker supply vessels operating in Rotterdam, Antwerp and Zeebrugge.”

The decision follows an independent study, through interviews and surveys, undertaken by CE Delft for all three ports. The CE Delft study outcome is similar to the findings of an extensive survey undertaken by IBIA and BIMCO in the first half of 2022, which found strong industry support for bunker supplier licensing and more use of mass flow meters (MFMs). These are seen as key tools for improving market conditions and reducing disputes between bunker suppliers and buyers. The survey was created by the IBIA Bunker Licensing & MFM Working Group, which representatives from both port authorities have taken part in.

The Port of Rotterdam Authority and the Antwerp-Bruges Port Authority, which commissioned the CE Delft study, said the study showed “regular quantity issues”. They said that 65% of stakeholders interviewed and over 90% of survey respondents saw the introduction of the mandatory use of an official bunker measuring system on board bunker vessels as a solution to quantity problems. IBIA supported the additional research effort by the port authorities by sharing information, and a link to the survey conducted by CE Delft, with its members.

“The ports have taken onboard complaints from various parties about regular bunker quantity irregularities. The result of the study into to the extent and nature of these complaints has given them impetus

to act. IBIA applauds their decision and calls for other relevant authorities to follow suit,” says Unni Einemo, Director of IBIA.

Regarding the equipment to be used, IBIA noted that some of those currently in use in the three ports are MFM of the type that are mandatory for bunker deliveries in Singapore. Others are volumetric flow meters. IBIA says it has learnt that the BMS systems will need to be certified and comply with OIML regulations to be approved under the new requirement. OIML, the International Organization of Legal Metrology, enables standardisation when developing technical regulations.

Einemo concludes: “The introduction of certified and standardised bunker measuring systems as a requirement for bunker supply operations in Rotterdam, Antwerp and Zeebrugge should help to significantly reduce quantity issues and boost confidence in these ports’ bunkering services, which are already among the most efficient in the world. This should further improve efficiency and create a more level playing field for bunker companies in these ports.”

IBIA has confirmed its Bunker Licensing & MFM Working Group will continue to push for adoption of bunker licensing and uptake of MFM in other areas, in particular major bunkering hubs where such measures will have the most impact.



Bunker measuring system mandatory in Antwerp, Zeebrugge and Rotterdam ©Ries van Wendel de Joode

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(Front row)

Left: Michael Phoon, Executive Director, SSA
Right: Capt. Naoki Saito, General Manager of Maritime Education and Training Certification Department, ClassNK

(Back row)

Right: Teo Teng Seng, Board Advisor of Pacific International Lines Logistics & Chairman of SSA Digital Transformation Committee
Left: Yasushi Seto, Regional Manager, ClassNK Singapore Office

TAKING CYBER SECURITY SERIOUSLY

A range of new initiatives have been launched to safeguard systems as shipping and bunkering become increasingly IT-dependent

While cyber-attacks on major organisations, including recently the UK's postal service and a key Ireland-based financial data group supporting the derivatives trading industry, appear to be frequent occurrences, maritime companies have appeared to have had suffered relatively few such attacks.

At least few have been acknowledged. Maersk suffered one in 2017 and as this issue of *World Bunkering* was being written, classification society DNV confirmed that a recent ransomware cyber-attack on its fleet management software had affected about 1,000 ships. Whether any bunker suppliers have been the victims of cyber

criminals is less clear, but it is certain that bunkering is rapidly becoming dependent on electronic systems, with paper bunker delivery notes becoming a thing of the past.

The shipping industry has been taking the cyber threat seriously for a long time, but there have been a number of recent initiatives aimed at reinforcing protection against cyber criminals.

The International Chamber of Shipping (ICS) has released an updated edition of the *Cyber Security Workbook for On Board Ship Use*, that was written and developed in collaboration with publisher Witherbys and BIMCO.

ICS says: "Cyber risk management should be an inherent part of safety and security and should be considered at all levels of the company, including senior management ashore and on board personnel. Cyber Security Workbook for On Board Ship Use provides practical guidance for ship and shore and is aligned with IMO Resolution MSC.428(98)."

The new edition contains updated information on current threats and includes new sections on topics including cargo management and passenger ships. Detailed case studies have been added to illustrate important examples of cyber risks.



Meanwhile, Singapore Shipping Association (SSA) and ClassNK have signed a Memorandum of Understanding (MOU) to establish a framework for cooperation in cyber security research activities.

With the signing of the MOU, the two parties will conduct joint basic research concerning establishing vessels' cyber security operation centres that provide crew members with support from onshore in monitoring and responding to cyber events onboard. Based on expertise and experience gained from this research, SSA and ClassNK will work on drafting a joint white paper on the finding of the research and developing education and training plans of personnel to work for vessels' cyber security operation centres jointly.

Michael Phoon, Executive Director of Singapore Shipping Association, said: "Cyber-risks for ships are growing, as our industry gets more digitally sophisticated, integrated, and automated. Today, many shipping companies are focused on providing better welfare onboard for their seafarers, such as internet connectivity for them to stay in touch with their family and friends. That means, the ability of onshore personnel to gain access to decisive and strategic cyber threat intelligence and insights is critical. This SSA-ClassNK partnership is timely as it forms the basis of efficient operations of cyber security operation centres aimed at supporting onboard cyber needs".

Capt. Naoki Saito, General Manager of Maritime Education and Training Certification Department, ClassNK said: "Recognizing that cyber security is the challenge that should be tackled with the collaborative approach of the industry, ClassNK firmly believes international frameworks can commit to helping the industry in raising awareness and studying the real-world risks. In this light, ClassNK is very glad to expand its partnerships with the driving leader in the sector in Singapore, a global maritime hub. We are committing to take this opportunity to identify the possible measures to establish the best practice on the issue. We hope to bridge the

outcome from the MOU to contribute to ensure the regional and global growth of maritime transportation in a secured manner."

Another classification society, Korean Register (KR), has launched maritime cyber security officer e-learning training in conjunction with maritime technology company SIRM Italia. The training will be delivered by Oltremare, a training subsidiary of Italian shipowners association Assarmatori.

The new course covers administrative security and cyber risk assessment as well as understanding and practice of maritime cyber security. The course is designed for ship officers who are required to undertake cyber security related audits and surveys.

KR Chairman & CEO Lee Hyungchul says: "With so many computer-based systems onboard, ships are vulnerable to cyber risk. Therefore, comprehensive cyber security preparedness is now essential for any maritime industry. This e-learning training allows superintendents and crews at all levels to continue their training, to understand and take actions to manage cyber security risk. We will provide quality training to European customers, starting with providing this cyber security e-learning training to Oltremare."

SIRM Italia CEO/COO Claudio Aleandri, says: "With rapid advancement in technology, shifting cyber threat landscape and increased digitalization, organizations are exposed to greater cybersecurity risks that may potentially have an adverse impact to their business objectives. It is imperative to prioritize and plan defences to avert those risks effectively. Organizations should be able to identify 'what could go wrong' and determine the levels of cybersecurity risk that they are exposed to, developing adequate assessment and adapting ICT infrastructure. Improving an internal cyber risk awareness culture, through dedicated training, is the strategic approach to protect the organizations and facilitate their governance."

In another development, Swiss marine power company WinGD says it has become the first marine engine designer to gain cybersecurity type approval for its engine control system, ahead of mandatory regulations due to enter into force in 2024. Ironically, it is classification society DNV that has granted WinGD Control Electronics (WiCE) an SP1 type approval, aligning with International Association of Classification Societies (IACS) Unified Requirement (UR) E27 technical system requirements – a cybersecurity standard that will apply to all newbuilds.

DNV's SP1 'Cyber Secure Essential' notation certifies that vessels are built with cybersecurity standards equivalent to UR E26, governing system integration, and UR E27, applying to installed technologies. The engine control system is one of several ship systems that need to be validated to E27 standard. Type approval assures that WiCE is technically ready to meet this standard.

DNV Head of Digital Ship Systems Jarle Coll Blomhoff said: "Cybersecurity is an increasingly critical element for the safe operation of more vessels as system complexity interconnectedness on-board and on-shore deepens. This is also a trend we see reflected not only in the emerging regulations, but commercial requirements. We are very pleased to be able to award WinGD SP1 type approval for their WiCE engine control system. Taking a proactive approach to cyber-security compliance not only assures customers that their systems have been developed with cyber threats in mind, but also helps build confidence and streamline the implementation of advanced digital technologies throughout the maritime industry."



Goodfuels bunkers AIDAprima with 100% biofuel. ©Goodfuels

CRUISING ALONG

The use of biofuels is increasing and technology is being developed to meet the specific requirements of this new fuel

Netherlands-based biofuels provider GoodFuels delivered 140 tonnes of 100% biofuel to the cruise ship *AIDAprima* in December 2022 during its 8th December port call to Rotterdam, in the Netherlands. GoodFuels says: "This first bunkering of 100% biofuels for *AIDAprima* marks another important step forward to achieving sustainability and decarbonisation in the cruise industry."

GoodFuels' next-generation sustainable biofuel is derived from feedstocks that are certified as 100% waste or residue, including processed used cooking oil, tallow, and animal waste fats. It enables a well-to-exhaust CO₂ reduction of 80% to 90% when compared to fossil fuels. The *AIDAprima* was bunkered with biofuel without requiring any modifications to the engine or fuel tanks.

The company added: "The vessel was refuelled with a 100% biofuel product, without blending with conventional marine fuels, proving the viability and technical applicability of sustainable marine biofuel for all types of vessels."

The vessel is operated by Carnival Corporation's AIDA Cruises brand, and the delivery of 100% biofuel builds on experience gained in July 2022, when *AIDAprima* was bunkered with a blend of biofuel and conventional marine fuels.

Commenting on the partnership, Dirk Kronemeijer, CEO of GoodFuels, said: "This bio-bunkering with AIDA Cruises comes as yet another big step forward on the cruise sector's decarbonisation pathway. It builds on the collaboration and partnership we are enjoying with AIDA Cruises and the wider Carnival group, and once again proves that our sustainable biofuels are an immediately available sustainability solution for a range of segments in the global fleet."

"The team at GoodFuels is focused on delivering immediate impact, and we are pleased to be able to continue to work with the pioneers at AIDA Cruises to see 100% biofuel used in operations to help deliver more sustainable voyages."

Biofuel-ready separators

Technology group Alfa Laval says its high-speed separators are now compatible with HVO (EN15940) and with FAME (EN14214 or ASTM D6751) blends comprising residual fuel and/or distillate.

The company notes that biofuels are a current and accessible fuel option that can help marine customers decarbonize. But it adds, while biofuels reduce CO₂ footprint, they also pose new operational challenges. Alfa Laval claims it is first in the market to address them with biofuel-optimised separators and separator upgrades.

Alfa Laval says that biofuels like HVO (hydrotreated vegetable oil) and FAME (fatty acid methyl ester) can be used by diesel engines without major engine modifications. They can be a carbon-neutral alternative if produced from the right biomass but, cautions Alfa Laval, they must still be cleaned effectively to prevent performance issues and expensive engine wear.

The company explains that biofuels are already in widespread use, and ISO is looking to incorporate them into the upcoming revision of ISO 8217. Nevertheless, they can be prepared in various ways and differ widely in their characteristics – both from conventional fuels and from each other. Because of differences in density, moisture absorption and more, they demand additional care when it comes to fuel storage and treatment, Alfa Laval says.

"To ensure optimal biofuel separation", Alfa Laval says it has modified both internal bowl components and the separator software. This makes setting up for HVO, FAME blends or conventional fuels a simple parameter change. Incorporated into new Alfa Laval separators for purchase, the developments are also available as upgrades for existing separators.

NUCLEAR POWER FROM BARGE

A floating nuclear powered electricity generating plant project could be a step towards nuclear propulsion for ships

French classification society BV and US-based nuclear power company ThorCon are to cooperate on the development of a 500 MW molten salt nuclear power barge for operations in Indonesia. The project is being described as a possible step towards using this type of nuclear technology for ship propulsion.

The concept developed by ThorCon is a molten salt fission reactor. The company says that, unlike current nuclear reactors, its reactor operates at low pressure and uses liquid fuel. In a statement it says: "The liquid fuel enables much higher operating temperatures, leading to greater efficiency while also enabling completely passive safety (requiring no action from the operator nor intervention on the power source to stop the reaction). The 500 MW fission power plant will be integrated within a floating barge hull and then towed to a shallow water site before being ballasted to rest on the seabed. The technology will then deliver energy to the power grid to meet land-based energy needs. ThorCon plants will be designed to be mass produced, which will support the transition to carbon free and reliable energy."

According to Thorcon's website: "The high-temperature, low-pressure liquid fuel leads to low cost and intrinsic safety. The reactor itself is in a Can that is replaced on a four-year service schedule. Molten fluoride salt with dissolved thorium and uranium fuel is similarly removed and replaced, on an eight-year cycle. Shipyards can rapidly fabricate 500 MW power plants on hulls to be towed to near-shore sites."

BV is to support ThorCon through the Technology Qualification process, both for the nuclear reactor itself and for its encapsulation (enclosed safe compartmentalisation allowing the replacement of depleted fuel) and integration with hull systems.

Experts from Bureau Veritas' Nuclear Certification Department and from its

Marine & Offshore Division will collaborate throughout the process. A key area of work will be to identify the applicable standards, codes and class rules, potential gaps with those currently available and the development if needed of new guidance notes and rules.

The scope of the agreement also includes the potential development and deployment phases once the Technology Qualification is completed. At this stage, it is anticipated that the Technology Qualification process will take a minimum of three years and if successful, the deployment phase would require an additional two years.

ThorCon has entered into discussions with the Indonesian province of Bangka-Belitung, the State Electricity Company PLN, and the Nuclear Energy Regulatory Agency BAPETEN regarding potential sites for the demonstration and the final installation of a 500 MW power plant.

Laurent Leblanc, Senior Vice President Technical & Operations at Bureau Veritas Marine & Offshore, commented: "Nuclear power is increasingly seen as one of the means to achieve global decarbonisation and the 1.5°C objectives.

New technologies, such as molten salt reactors, open opportunities for the deployment of nuclear energy, power generation in the marine environment being an example. At BV we are proud to be at the forefront of safe innovation, supporting pioneers like ThorCon, by helping them assess the feasibility of new nuclear technology development up to their industrial application. Our role is to assess and address risks to ensure such technologies can be deployed with the highest safety standards. This project is very exciting as it can be a stepping stone to other applications such as the generation of hydrogen offshore and even nuclear ship propulsion."

Dave Devanney, CEO ThorCon, commented: "ThorCon has developed a 4th generation advanced nuclear reactor design that solves the most perplexing problem of conventional nuclear power: excessive cost. ThorCon is initially implementing its technology in Southeast Asia where the need for low-cost dispatchable carbon-free energy is urgent. Providing a practical clean solution to Southeast Asia's growing energy needs will significantly slow global warming and climate change."



ThorCon 500 MW MSR power plant in ship hull cutaway view ©Thorcon



Maersk is expanding its fleet of methanol fuelled container ships. ©shutterstock

RAMPING UP A GEAR

Maersk secures new methanol supply deal as moves towards its widespread use develop apace

Container shipping giant A.P. Moller – Maersk and US based project developer Carbon Sink have signed a letter of intent covering the development by Carbon Sink of green methanol production facilities in the US. The first such facility will be co-located with the Red River Energy existing bioethanol plant in Rosholt, South Dakota, US, and will have a production capacity of approximately 100,000 tonnes per year. The commercial start is anticipated in 2027 and Maersk says it intends to purchase the full volume produced at the plant, with options for the output of subsequent Carbon Sink facilities at other locations.

This is Maersk's eighth such agreement in the efforts to accelerate global production of green methanol. "Securing green fuels at scale in this decade is critical in our fleet decarbonisation efforts. We have set a 2040 net zero target for our entire business – but importantly to stay in line with the Paris Agreement, we have also set 2030 targets to ensure meaningful progress in this decade. Partnerships are essential on

this journey – and I am very pleased to welcome Carbon Sink on board," says Berit Hinnemann, Head of Green Fuels Sourcing, A.P. Moller – Maersk.

In January 2023 it was announced that the 2M alliance between Maersk and MSC would end in January 2025, prompting speculation that Maersk has increased the number of methanol-fuelled container ships it has on order.

Carbon Sink uses a commercially available technology to produce green methanol by combining green hydrogen from electrolysis of water, using additional renewable electricity, and biogenic CO₂. The CO₂ for the first project will be waste CO₂ captured from the Red River Energy bioethanol plant, recycling those emissions into green methanol. The companies describe as 'green' fuels or energy sources that have low or very low greenhouse gas emissions on a total life cycle basis.

"We are very pleased to be working with Maersk in support of their mission to decarbonise the shipping sector. Carbon Sink brings a vast wealth of knowledge, experience and partnerships to help them achieve their ambitious corporate goals. Our multi-project development strategy creates a pathway for the supply of significant volumes of green methanol to help meet the demand of Maersk's growing dual-fuel ship fleet," says Steve Meyer, CEO of Carbon Sink.

In March 2022, Maersk announced six partnerships with the intent of sourcing at least 730,000 tonnes of green methanol per year by the end of 2025. The partnership entities are CIMC ENRIC, European Energy, Green Technology Bank, Orsted, Proman, and WasteFuel. A seventh partnership with Debo was added in August.



Ulsan Port commits to supporting methanol bunkering. ©Ulsan Port Authority

Methanol bunkering in South Korea

Classification society Korean Register (KR) and Ulsan Port Authority (UPA) have signed an MOU to support methanol-fuelled ships and "establish the South Korean port as a low-carbon, eco-friendly energy hub".

KR notes that methanol produces 99% less sulphur oxides (SOx), 80% less nitrogen oxides (NOx) and 25% less greenhouse gases compared to conventional marine fuels. It adds: "A growing number of dual fuel methanol vessels are being ordered by international shipping companies, and in October South Korean shipping company KSS Marine took delivery of the country's first methanol powered vessel, *MV Savonetta Sun*, a 50,000 dwt product tanker."

UPA Vice President Jeong Chang-gyu, Vice President of UPA, said: "UPA is actively working to make eco-friendly, and low-carbon fuels become more of a universal feature in shipping and port markets. We will support the widespread use of methanol-fuelled ships and methanol bunkering in cooperation with KR using Ulsan port, one of the key energy hubs of North-East Asia."

The two organisations say they will collaborate on regulatory reform, deregulation of methanol-fuelled ships and methanol bunkering, utilizing independent tank terminals in Ulsan as methanol storage facilities, testing methanol bunkering at Ulsan port and building methanol supply infrastructure in Korean ports.

Hybrid propulsion system for heavy lift vessels

The technology group Wärtsilä is to supply its hybrid propulsion system to four new heavy lift vessels being built at the Wuhu Shipyard in China. The vessels have been contracted by SAL Heavy Lift, a German heavy lift and project cargo specialist and part of the Harren Group, in cooperation with its joint-venture partner, Netherlands-based Jumbo Shipping. There is an option for an additional two vessels.

Wärtsilä's hybrid system is intended to minimise the ships' CO₂ emissions and will feature a variable-speed Wärtsilä 32 main engine capable of operating with methanol fuel. The ships are described as the first methanol-fuel capable ships to employ a variable speed main engine.

The hybrid system also includes Energy Storage, a PTO/PTI generator and motor, a multi drive converter, and the Wärtsilä Energy Management System for controlling and optimising the hybrid operations. The Energy Storage system will be based on Lithium-Titanium-Oxide (LTO) batteries, which can handle higher amounts of deep cycles than normal Lithium-Ion based systems. The ESS is expected to significantly reduce the fuel consumption and/or the necessary size of the port's electric shore connection during crane operations, while also providing fuel savings at sea by reducing Engine Load fluctuations in rough seas.



SALs new Orca Class III ships will be able to use methanol as fuel. ©SAL Heavy Lift

SEA-LNG PUTS ITS CASE

Pro-LNG lobby group sets out why it sees LNG as the obvious pathway to decarbonisation

SEA-LNG published an overview of LNG as a marine fuel in 2022-2023. The report, *A View from the Bridge' 2022-2023 | LNG Delivering Decarbonisation* highlights how it sees the shipping industry as having advanced along the LNG pathway to decarbonisation in 2022 and outlines what progress is anticipated in 2023.

The report says: "2022 was another very strong year for LNG vessel orders, with numbers almost equalling those in 2021, the record year to date, despite exceptionally high LNG prices. The majority of these will have low slip engines with the potential to cut GHG emissions by up to 23% on a well-to-wake basis, as well as eliminate local emissions in the air we breathe. LNG is the only scalable fuel available today for deep-sea shipping that addresses both climate and health challenges."

According to SEA-LNG, shipowners are investing in the global LNG-fuelled fleet with the confidence that LNG infrastructure is already established in key bunkering locations and growing rapidly around the world. It says that there is growing recognition that decarbonisation will not be a 'big bang' process where the industry moves in a single step from fossil to zero-emission, renewable fuels. It suggests that the process is likely to take place incrementally as fuels are gradually decarbonised through the addition of low and zero-emission drop-ins and supplied at scale using existing infrastructure.

The report continues: "The industry is making massive investments in new builds and energy supply infrastructure that will impact GHG emissions today and for the next 25-30 years, the typical lifetime of a deep-sea vessel. Therefore, it is essential that assessments of alternative marine fuel pathways are made on a like-for-like, or 'apples with apples' basis using accurate data.

It says while regulators and industry are agreed on the net-zero emissions destination, the implications of the pathway are rarely discussed. The total pathway emissions associated with many of the alternative fuels being discussed may be much higher than those associated with LNG and its bio and synthetic variants.

The report's key argument is: "Being able to transition safely and easily from fossil LNG to bio-LNG, to renewable synthetic e-LNG means that LNG assets will not become stranded and that vessels ordered today will be able to continue operating within increasingly stringent GHG emissions regulations up to and beyond 2050."

SEA-LNG Chairman Peter Keller asserts: "Shipping stakeholders are investing in LNG because it provides a low risk, incremental pathway for decarbonisation, starting now."

Predicting how decarbonisation will evolve, the report says: "Bio-LNG, produced from sustainable biomass resources, is commercially available today and production is growing; it is among the cheapest of the alternative fuels being discussed. The availability of renewable synthetic e-LNG will depend on the build out of renewable electricity, as is the case for other electro-fuels such as e-methanol and e-ammonia and it is likely to be competitive on price"

Onboard hydrogen production from LNG

Technology group Wärtsilä and Hycamite TCD Technologies, a privately-owned Finnish company specialising in the development of a pioneering technology for producing clean hydrogen and solid carbon from methane, are to work together to enable cost-effective production of hydrogen from LNG onboard marine vessels. It is intended that the concept design will be ready by mid-2023, and the prototype testing unit ready during the second half of 2024.

The concept will allow the existing LNG supply infrastructure to be utilised and enable production of hydrogen onboard in combination with Wärtsilä's LNGPac Fuel Gas Supply System. By producing hydrogen onboard and blending it with LNG, the current range of fuel flexible Wärtsilä dual-fuel (DF) engines can reduce the vessel's overall CO₂ emissions and methane slip. Alternatively, the hydrogen can also be used in fuel cells onboard.

The by-product from the process is solid carbon that, unlike conventional technologies which produce CO₂ as a by-product, can more easily be stored and managed onboard. The carbon produced

consists of high-grade allotropes, like industrial graphite and carbon nanotubes, thereby offering a possible additional revenue stream.

"We are investing in the development of viable future marine fuel technologies and solutions that can accelerate the efforts to decarbonise shipping operations. This collaboration with Hycamite is an important step forward towards meeting our corporate targets. Our gas engines can already operate with mixtures of hydrogen and LNG. The ability to produce the H₂ onboard opens up exciting new opportunities. This solution overcomes the lack of an existing hydrogen supply infrastructure. It also supports reducing the safety risks around storing and handling of liquid hydrogen and enables a gradual decrease of the vessels' environmental impact," says Mathias Jansson, Director, Fuel Gas Supply Systems, Wärtsilä.

Bio-LNG factory

Attero, Nordsol, and Titan are jointly building a bio-LNG plant at Attero's waste processor facility at Wilp, the Netherlands. The FirstBio2Shipping project is set to deliver the first bio-LNG in early 2024.

The plant will process domestic biowaste into 6 million Nm³ of biogas per year. Nordsol and Attero will jointly produce 2,400 tonnes per year of high-purity bio-LNG (or liquefied biomethane) and 5,000 tonnes per year of liquid bio-CO₂ from this biogas, using Nordsol's patented iLNG technology. Titan, as exclusive long-term off-taker, will supply the bio-LNG to the maritime industry where it is expected to cost-effectively substitute fossil fuels.



Paul Ganzeboom (CEO Attero), Wouter Zijlmans (CEO Nordsol) and Ronald van Selm (CTO Titan) met at the site for the new bio-LNG production plant to start their collaboration. ©Nordsol



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~ A poem for the Sea ~

Dereliction: And the Ocean Too Weeps

by Salim Bhimji

Through restless centuries I have powered
Heroic onslaughts by commanders
Of the great empires.

Across the ages, man has longed to unravel
The mystique that shrouds me.
The scholars of science reach

For me to uncover secrets of the past.
Pioneering men seeking out new lands
Deemed me the crowning conquest.

Mighty industries flourish because of me
And dynasties shaped, by men
Who wove their steel through me.

For entrenched within, like incipient gems,
I meld the very elements with which kingdoms
Power prosperity. Yet no man can own me.

Agile and self-replenishing
I am a mirror of the heavens,
Nestling every rhythm, in cycles rippling.

To the unwitting I am formidable.
But the same seek solace in me;
In the soft, soothing songs
That dance through my being.

I am the cradle of life for billions.

Yet, for all my elegance, I am now bereft;
Wounded. The turning tides, so harsh,
Have left me ravaged; in anguish.

How I yearn to be cherished again.
Grant me the dignity I deserve.
That dignity which was once unspoken,
Then, almost broken.

To survive, I must search reach clutch
At new ways to reinvent myself.
A mere ritual since times long past.

Except these are dark days
And I face ferocious thunders ahead.
Yes, I am wrenched by the unknown.

Though known by many names, I am unique.
That I might look invincible
Is simply part of the mystique.

Beyond the drifted ocean,
A heroine's grief, spoken.



Salim Bhimji

Salim Bhimji is a Maritime Analyst who has worked across the shipping industry for over 25 years. He has been part of a team that provides intelligence to shipowners, ship operators and brokers. The data spans all major commercial shipping sectors, including tanker, chemical tanker, bulk carrier and the LNG/LPG segments. He is an Executive Director and Managing Partner of Ocean Press & Publishing Ltd. He began his creative writing education at The Poetry School in London and says that he was "pleasantly astonished" to discover that he was nominated a finalist for The Montreal Poetry Prize.

Salim's poem will be published in an anthology, which will form part of the English Literature curriculum to be taught at several Universities across North America and beyond.

The anthology will be published by Véhicule Press.

The Montreal International Poetry Prize

The Montreal International Poetry Prize was founded in 2010 by the poet and critic Asa Boxer. It sponsors a crowd-funded competition, awarding one prize of \$20,000 to one poet for a single poem every two years. It is a global competition, supported by an international jury of poets from around the world and participants from more than 100 countries. It is managed by the Department of English at McGill University.

The competition invites online submissions of poems in English from anywhere in the world, and is judged by an eminent poet appointed by the Department of English at McGill University. In 2011 the competition was judged by former British Poet Laureate Sir Andrew Motion. Subsequent judges have included Don Paterson, Eavan Boland, Michael Harris, Yusef Komunyakaa and Lorna Goodison.

The \$20,000 prize is thought to be the world's largest monetary prize for a single poem.

Discover new ocean opportunities.



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2023

Your Arena for
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Join Nor-Shipping
in Oslo, 6-9 June 2023

DIARY 23

9 MARCH 2023

**GREEN SEAS FUELS FORUM 2023
NEW YORK, USA**

Across three sessions, the forum will explore the intersection of sustainability and the business of marine fuels. The speaker line-up will include the first-mover shipowners and operators that are currently taking steps to tackle their GHG emissions by investing in new fuels. Finance specialists will discuss how the ESG pressures in banking and investing will impact shipping's decarbonization path and new fuel technology financing. Finally, experts will take a deep dive into the markets for alternative marine fuels to figure out how shipping will obtain supplies amid competition with other industries.

Adrian Tolson, IBIA Regional Board Americas Chair, IBIA Board Member and Treasurer will be participating as a speaker.

For more information:
<https://www.tradewinds.events/website/9929/>

13 – 15 MARCH 2023

**FUJCON (FUJAIRAH BUNKERING AND FUEL OIL
FORUM) FUJAIRAH, UAE**

Along with S&P Global, the Government of Fujairah & Port of Fujairah, are pleased to hold the 13th International Fujairah Bunkering & Fuel Oil Forum (FUJCON 2023) from 13-15 March 2023 in Fujairah, UAE, under the Patronage of H.H. Sheikh Hamad bin Mohammed Al Sharqi, and the support of the Fujairah Oil Industry Zone.

The FUJCON 2023 Conference Theme is
"The Maritime Energy Transition & Future Fuels".

A number of IBIA Board members will be participating as speakers, as well as Unni Einemo, IBIA Director and IMO representative.

For more information: <https://plattinfo.spglobal.com/fujcon.html>

21 – 23 MARCH 2023

**CMA SHIPPING CONFERENCE & EXHIBITION
STAMFORD, CONNECTICUT, USA**

For our 37th edition of this premier annual event, brought to the industry by the Connecticut Maritime Association, our key topics include State of the Industry, Decarbonization & Alternative Energy, Freight Markets, Digitalization, Finance, Salvage & Wreck Removal, Integrated Logistics and Finance.

Unni Einemo, IBIA Director and IMO Representative and Adrian Tolson, IBIA Board Member, Treasurer and IBIA Americas Regional Board Chair will be presenting in the session 'Bunkering in Focus: A look at infrastructure, strategy, and the future'.

For more information: <https://informaconnect.com/cma-shipping/>

20 APRIL 2023

**IBIA MEDITERRANEAN ENERGY AND SHIPPING
CONFERENCE GENOA, ITALY**

In April, IBIA will be hosting the second IBIA Mediterranean Energy and Shipping Conference, this time in Genoa, Italy. IBIA is honoured to have Marco Bucci, Mayor of Genoa, as well as Paolo Signorini, Chairman of the Genoa Port Authority as Keynote Speakers. The agenda is almost complete, and the conference will focus on Regional Dynamics, Emission Regulations / Clean Shipping & Decarbonisation, Financing Bunker operations in current market conditions while a panel will explore the importance of Leadership in the bunker industry. IBIA has several key industry players confirmed as speakers and sponsors and look forward to an information-rich programme. This is definitely one not to be missed! The conference will end with a special gala dinner at the beautiful Villa Lo Zerbino.

For more information: <https://ibia.net/event/ibia-mediterranean-energy-and-shipping-conference-geoa-italy/>

24 – 28 APRIL 2023

**SINGAPORE MARITIME WEEK
SINGAPORE, ASIA**

Singapore Maritime Week (SMW) is an annual gathering of the international maritime community to advance key industry issues and exchange ideas to bring the sector forward. Driven by the Maritime and Port Authority (MPA), in collaboration with industry stakeholders and research and educational institutions, SMW brings together key opinion leaders and industry leaders through conferences, dialogues and forums.

For more information: <https://www.smw.sg/>

26 APRIL 2023

**IBIA ASIA GALA DINNER
SINGAPORE, ASIA**

Join IBIA Asia in Singapore as part of IBIA's celebration of 30 years as an association. This is IBIA's most prestigious networking event in Asia and one of the highlights of year. Following the successful IBIA Asia Annual Dinner 2019, IBIA in Asia will be hosting the dinner in Singapore on Wednesday, 26 April 2023 at the beautiful Parkroyal Collection, Marina Bay, Singapore.

The IBIA Asia Gala Dinner has been part of the Singapore Maritime Week's social scene for many years. The highly successful event attracts about 200 players in maritime and bunkering industries, not only from Singapore but also more widely, from many countries in the region. The gala dinner has also become an annual social event which the industry looks forward to for a night of toasts, good cheer and gourmet delights.

For more information: <https://ibia.net/>

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

23 – 25 MAY 2023

**ARGUS GREEN MARINE FUELS CONFERENCE
AMSTERDAM, NETHERLANDS**

The Argus Green Marine Fuels Conference returns in May 2023 to offer you high impact networking opportunities with senior industry stakeholders, and insights into key developments that are shaping the shipping industry, including IMO, EU regulation and more. Hear from senior industry leaders across the methanol, ammonia, hydrogen, LNG, and biofuels sectors, alongside key regulators, governments and ship owners and discover their views of how the marine fuel matrix of the future is shaping up.

For more information: <https://www.argusmedia.com/en/conferences-events-listing/green-marine-fuels>

11 – 15 SEPTEMBER 2023

**LONDON INTERNATIONAL SHIPPING WEEK
LONDON, UNITED KINGDOM**

Since its inception in 2023, London International Shipping Week (LISW) has grown consistently and is set to become an even bigger event in 2023, when the shipping world is once again able to meet in person.

For more information:
<https://londoninternationalshippingweek.com/>

JUNE / JULY 2023

**IBIA AFRICA ENERGY AND SHIPPING CONFERENCE
ACCRA, GHANA**

Date to be confirmed soon for the IBIA Africa Energy and Shipping Conference to be held in Accra, Ghana. This will be our 5th Regional Conference in Africa. The Conference will bring together the global and Africa bunker industry for 3 days of training, information-rich sessions and networking. IBIA will create a platform for engagement with industry and government, and shared learning. Our speakers will range from experts in fuels, shipping, port authorities and regulators.

For more information, speaker and sponsorship opportunities please contact: tahra.sergeant@ibia.net

7 – 9 NOVEMBER 2023

**IBIA ANNUAL CONVENTION 2023
DUBAI, UNITED ARAB EMIRATES**

Save the date for the IBIA Annual Convention 2023. This year we will be in Dubai, at the magnificent floating hotel, Queen Elizabeth 2, located in Port Rashid.

For more information, speaker and sponsorship opportunities please contact: tahra.sergeant@ibia.net

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

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





SPR GLOBAL

SPR Global Oil & Commodities DMCC is a free zone company registered with DMCC, Dubai

UAE based SPR Global is geographically positioned at the center of the trade network, connecting to major ports worldwide. Empowered with local expertise and strong associations with ship owners, charterers, and oil traders, SPR Global successfully meets the growing demand for bunker fuels in one of the busiest trade routes of the world. Since it began additional operations in Khorfakkan, in September 2022, it now operates in ports across the United Arab Emirates, thereby strengthening its Middle East operations.

SPR Global has a fleet of four bunker barges with a total DWT of over 37,000 and in addition has a modern fleet of tank trucks to cater to bunker requirement of Gasoil and Fuel Oil at berth.

To cater to various pricing needs of customers especially in a high volatile bunker price market, SPR Global can offer customers various pricing options viz. term contracts, prices based on Platt's quotes, prices basis Bunker Wire quotes, spot prices, fixed price, and prices basis periodic average of Platt's and/or BW quotes.

SPR Global is positioned to match the needs of the increasing global shipping clientele and provides a well-proven and trusted bunkering experience. As traders of all grades of marine fuel, lubricants and oil, the company has become a reliable trading partner to international shipping companies. Working across the maritime supply chain, SPR Global has become a one-stop solution, providing bunkering services of MARPOL compliant fuel.

www.sprglobaltrading.com





ATH TRADING

FROM ANGOLA TO THE WORLD

Based and focused in Angola, ATH is a physical bunker trader delivering tailored solutions to maritime clients across the globe

ATH Trading is an independent, privately owned commodity trading company that commercializes crude distillates of marine use: MGO and VLSFO.

With extensive experience providing reliable bunkering services, ATH is owner of the vessel ATH Lemba (6000 DWT), available for freights in the WAF region and for the local bunkering activity in all ports of Angola.

ATH has a diversified portfolio of clients ranging from international fishing fleets, general cargo companies or international oil companies.

Angola is set to become one of the next bunkering hubs in the WAF region due to four key points:

1. Angola produces an excellent quality of light sweet crude oil containing low volumes of Sulphur (<0.5%);
2. Angola is in a privileged position to attract the maritime traffic of both South Africa – Lomé and Continent – Middle East routes;
3. Low port call costs and availability to receive bunkers at berth;
4. Increase in volumes in the near future with the incorporation of up to 3 more refineries.

ATH is driven by the objective of providing the best tailored bunkering solutions to clients at the highest standards.

We guarantee product quality and quantity – from sourcing to delivery and offer the best competitive prices

Email: bunker@ath-trading.net





SALALAH BUNKERS

Fujairah Engineering Company LLC (FECO), which was established in 2004 in Oman and has since been operating the bunkering facility of 110,000 m³ storage capacity, leased the now called FECO bunkering facility and has been supplying bunkers at Salalah Port since April 2022.

M/T Sea Dweller, a 2002 built bunker barge stationed in Salalah, with a 800MT per hour pumping capability, and 3,420 DWT, supplies Low Sulphur (0.1%) Marine Gasoil ISO 8217 and Very Low Sulphur Fuel Oil (VLSFO) ISO 8217 with plans to introduce High Sulphur Fuel Oil in the future.

In addition to deliveries by barge, FECO has the ability to deliver Marine Gas Oil and VLSFO via pipe and LSMGO 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 Dimitri Martinuzzi available at the following contact details:

bunkers@feco-oman.com · oman@oil-marketing.com
Tel: +971 4 4350500 · Mob: +971 50 433 0507

Complimenting the company's bunker supply operations, FECO, with its 110,000 m³ capacity terminal inside Salalah port and its 18-year experience in trading and chartering, is able to offer the following services:

- Tanker Chartering
- Cargo Trading
- De-bunkering
- Third Party Oil Storage

For all enquiries, you can contact:

bunkers@feco-oman.com & terminal@feco-oman.com





SEA CROWN MARINE SERVICES

Serving the marine community since 2019

SEA CROWN MARINE SERVICES DMCC is registered legal entity in Dubai, UAE and is the EXCLUSIVE PHYSICAL BUNKER SUPPLIER in Iraq Ports i.e. Basra, Khor-Al-Zubair and Umm Qasr and have started consistent Bunkering Operation from July 2019.

Sea Crown Marine Services has been serving the maritime community since 2019 and is one of the biggest marine agents in Iraq handling most of the tanker movements for Khor-Al-Zubair and Umm Qasr Ports and STS operations at KAZ OPL.

Sea Crown has contract with State Company for Maritime Transport (SCMT) since 2016. We are the only company to handle activities in Iraq related to Bunkering vessels and any floating units, Fresh Water, Provisions, Lubricants,

Husbandry Services, Spare Parts, Health Services for Marine Crews and performing Repair and Maintenance to all ships and floating maritime units.

Sea Crown Marine Services is trusted by world's leading shipping majors for their bunkering requirements for its competitive pricing and services on par with major bunkering ports in the world and currently doing Volume of 25,000 to 30,000 MT's per month with Major VLCC and Tanker Operators and Refiners. Sea Crown Marine Services has supplied more than 500 Vessels smoothly in last 6 months Majorly to VLCC, Suez-max and Afra-max arriving at Basra Oil Terminal for Crude oil operations.

Basra OPL is an ideal location for bunkering of VLCCs as there is no draft restrictions and NO CALLING CHARGES levied and NO

AGENT required for vessels coming to Iraq for BUNKER ONLY CALL. We are currently operating with two barges with a total barging capacity of 27kT and supplying all grades of marine fuels – VLSFO S MAX 0.5%, IFO 380cSt, IFO 180cSt, MGO S max 0.5% and LSMGO 0.1% at berth and anchorage of all Iraq ports.

Telephone: +971 4589 6355

Mobile: +971 5868 81605

**Email: marketing@seacrowndmcc.com
seacrowndmcc.com**

**Office 204, Indigo Icon Tower,
Cluster F, Jumeirah Lake Towers,
Dubai, United Arab Emirates,
PO Box : 213204**



IT'S TIME TO SWITCH TO THE GREEN COURSE

With the closure of MEPC 79, the IMO GHG Strategy scheduled for 2023 and the future is getting clear. Especially for vessels that are likely to have CII rates below D

Luckily, there are many approaches for vessels to improve their rating. Multiple well-developed options are already available, offering various approaches to reducing emissions and enhancing efficiency in different aspects.

Fuel Oil

As a mature energy, fuel oil still takes a dominant share in marine fuel with its advantages such as high energy density, well-known engine technology, fuel standards, etc.

However, burning fuel oil has several negative disadvantages which impose a heavy burden including CO₂, SOx, and PM emissions such as black carbon.

Headway is providing solutions to mitigate the harmful effects of burning fuel oil to comply with the regulations from IMO. Headway's OceanGuard® Carbon Capture, Storage & Utilization (CCSU) solution, adopting the latest technology, ensures stable performance with only 10% height of the conventional scrubber design. The solution is capable of capturing CO₂ in a good performance with less power and heat consumption. In addition, Headway has composed a new formula that is 3~5

times more efficient than regular MEA. Combined with OceanGuard® Exhaust Gas Cleaning System, OceanGuard® CCSU can save up to 25% of the fuel costs.

Headway's OceanGuard® Exhaust Gas Cleaning System is a tailor-made solution with swift ROI and low OPEX. It adopts ultra-micro atomization technology without any packing layer, which has no inconvenient packing replacement, back pressure increase to the main engine, or cracks inside the scrubber. The system is capable of automatically adjusting the power of the seawater pump in time according to the onboard working conditions of the main engine to achieve the maximum effect and realize a shorter ROI.

Alternative Fuels

Fuel oil is not the ultimate solution for zero-carbon and the market is looking into suitable and reliable alternative fuels including LNG/LPG, methanol, biofuels, hydrogen, and ammonia to serve as a promising solution to achieve a lower LCA carbon footprint. However, alternative fuels also caused fierce arguments and require more attention on infrastructures. For example, hydrogen is a promising

"Zero-Emission" solution. However, there is still a long way before H₂ or LH₂ comes to the stage. Moreover, under the LCA approach, maritime requires green or blue hydrogen to reduce well-to-tank emissions. Ammonia, as clean energy, faces the same challenges.

Although the long-term solution is on the way, the medium-term one is already available, as LNG-fueled and methanol-fueled vessels are already feasible. For example, OceanGuard® Low Flash-point Fuel Supply System (LFSS), developed independently by Headway, has obtained an AiP from RINA. OceanGuard® LFSS adopts modular and redundant design. Additionally, Headway has also developed core filtration units, and duplex filters with high filtration accuracy. It's estimated that LFSS with green methanol can help vessels reduce up to 90% of carbon emissions. In addition, OceanGuard® Marine Fuel Gas Supply System (FGSS) contributes further to carbon neutrality and two of them have been operated on two 11,000-dwt bulkers. This milestone follows a confirmed order for 10 sets.

Headway, as a trusted partner, remains committed to providing high-performance solutions, technical support, and consultancy in complying with various regulations from IMO, classification societies, flags, and more according to size and type of ship, route it sails, onboard space, and engine type.

Green shipping is embedded in Headway's vision and development strategy, and broader efforts to help the industry accelerate its journeys toward decarbonization.

About Headway

Headway Technology Group (Qingdao) Co., Ltd. is a high-tech enterprise that takes technological innovation as the purpose and specializes in the research, manufacturing, and sales of high-tech marine equipment with a comprehensive global after-sales service network.

www.headwaytech.com





AT YOUR SERVICE!

Come with us as we continue to fulfill our dreams

ORGANIZACIÓN TERPEL is a company that sells Fuel in Colombia for automobiles, aircraft and vessels. It also produces lubricants with international operations in Panama, Ecuador, Peru and the Dominican Republic in the aviation market.

In Colombia, we are market leaders in liquid fuels and natural gas retail. We also have the largest chain of gas stations and network across the whole nation.

We have a highly qualified team that makes our operations fast and safe for every customer.

The team of Terpel gathers 3,000 partners in five different countries: Colombia,

Peru, Ecuador, Panama and Dominican Republic who commit every day to hard work and service, to keep industry and transportation moving. Our team is highly qualified and specialized in making our operations reliable, fast and secure for each of our customers.

Our team is constantly innovating our products to offer the best quality and price for you at all time. Therefore, we offer proposals that provide value to our customers at each service station, airport and maritime ports.

Our bunker business is located in Colombia and Panama where we deliver by barge, truck and pipeline. We provide marine diesel for passenger ships, fishing vessels,

tuna seiners, dredges, general cargo ships, tugboats, and logistics support vessels on the high sea.

We offer Marine Gas Oil and marine lubricants with the best quality and the best prices, in the principal terminals in Colombia and in Panama.

We are proud to have earned the trust of our customers by offering quality products as well as constant innovation at the best price for you.

If you need us, please contact us at bunkers@terpel.com and check our web page www.terpel.com

AT YOUR SERVICE!

Come with us as we continue to fulfill our dreams





PROVIDING THE BEST SERVICES



Big enough to be powerful, small enough to be agile

Our aim, at Bunkeroil, is to offer our clients a truly competitive advantage by providing the best services in terms of maritime transport, delivery & sale of oil products and the relationship between shipowners and port operations.

We offer bespoke solutions with a high added value when it comes to operational flexibility and financial conditions.

Since the company was founded in Livorno in 1980, our history has always been marked by constant growth and focus on the quality of our products and services, as well as on client satisfaction. This has made us one of the key players in bunker and marine lubricants sale, both nationally and in the Mediterranean.

From the port of Livorno, our marine fuel and lubricant distribution operation began to expand into all Italian ports, in order to meet the diverse needs of our clients in an increasingly comprehensive way.

From the outset, our shipping activity in the transportation of petroleum products in the Mediterranean has run alongside the Bunker service, and in the early 2000s we upgraded our fleet.

During the same period, we launched the Clearing and Shipping Agency service in the port of Livorno,

whilst our international expansion in the lubricant sector began in the second half of the 2000s. Today, we cover all of the world's main ports as bunker and lubricant traders, of course with a greater focus on the Mediterranean Sea.

In 2018 we launched a constantly stocked lubricants storage service as leading ExxonMobil Distributors for local market in the territories of Italy and Malta.

The cornerstones of our work.

Being a supplier is not enough, and that is why we strive to form partnerships with our clients, through:

- the best products in terms of quality;
- maximum operational flexibility;
- problem solving;
- bespoke financial solutions.

With years of experience in the industry, we have developed a well-established network that enables us to respond to client requests promptly. We offer our clients:

- availability of the product or equivalent alternatives;
- 24/7 service;
- the most competitive price on the market, thanks to our greater purchasing power.

BUNKEROIL CONTACTS:

Address: Via Pietro Paleocapa 11, 57123, Livorno, ITALY.

Phone: + 39 0586 219214

Bunker enquiries: bunker@bunkeroil.it

Lubricant enquires: lubricant@bunkeroil.it

Please visit: www.bunkeroil.it

Follow us on LinkedIn: Bunkeroil



WORLD BUNKERING

Q2 2023... NOW OPEN FOR BOOKINGS

Q2 2023

SPECIAL FEATURES:

Scrubbers

After almost disappearing in 2020, the differential between HSFO and VLSFO prices widened in 2021 and even more so in 2022. Has that boosted demand for scrubbers? We also look at the continuing debate over scrubber washwater.

Fuel Management

Biofuels are emerging on the bunker scene in a significant way. What fuel management challenges do they pose?

.....

GEOGRAPHICAL FOCUS:

Africa

We report on the bunker scene around the ports of this vast continent. Last year we reported grounds for optimism, especially in West Africa. We look at how the bunker industry and its clients have fared since then.

Eastern Mediterranean

IMO has now committed to establishing a Mediterranean ECA which will come into effect in May 2025. What impact will that have? Meanwhile the region is uncomfortably close to the conflict in Ukraine. We report on how the bunker industry is coping in challenging times.

.....

Regular Features

IBIA News, Views & Analysis

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



BUNKERING BY TRUCK OR BY BARGE IN WEST EUROPE

FOR ALL YOUR ENQUIRIES OR QUESTIONS PLEASE CONTACT US ON:
Tel : +33 (0)4 69 96 06 96 • E-mail : contact@oil-atlantic.energy



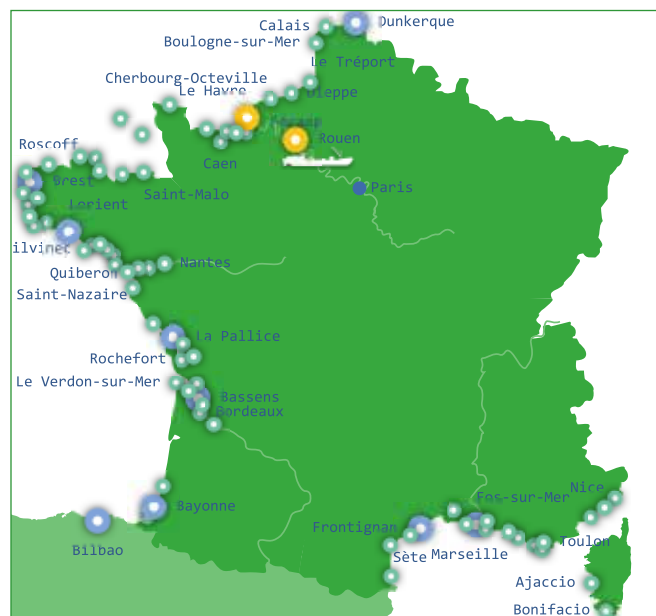
- Marine bunkering Operations
- Barge capacity 880 m³
- Delivery from 10 m³ to 880m³
- Certifications: Quality ISO-8217-2017 / Marpol Procedures

Atlantic Energy was founded in 1999 and has been fully concentrating on selling bunkers to vessels.

Our Marine fuels and Services consist of Low sulfur Fuels oils, Liquified Natural Gas (LNG), Distillate Marine Fuels, Lubricants with Truck capacity 36m³.

We manage with local vessel agents for the whole supply chain - from our terminal to vessel.

Deliveries are made by own barge inner le Havre and Rouen Port (24/7 365 days a year) and we are able to supply by truck in all French ports.



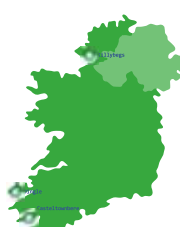
Belgium



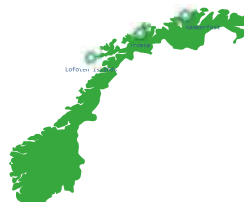
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Norway



Spain



Bunker Office

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3 Quai du Confluent, Immeuble Le Beaupré, 78700 Conflans-Sainte-Honorine, France



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.



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:

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email: bunkers@goil.com.gh



**WE CARE
WE KNOW
WE SUPPLY**

**Get expert advice on
your bunkering needs**